BIOLOGY DEPARTMENT

TELEPHONE ENGINEER and MANAGEMENT

MAY, 1949

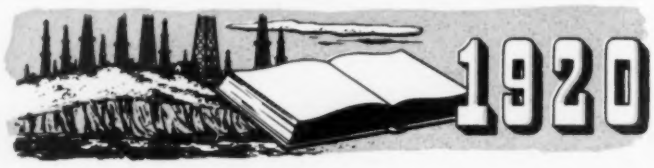
HUNTINGTON BEACH, CALIFORNIA

Romance in OIL

61 years, to the month, after Colonel Edwin Drake's first well spouted black gold near Titusville, Pennsylvania, a Standard Oil Company geologist named Gester pointed his divining rod toward Huntington Beach, California. Shortly thereafter, on August 20th, 1920, Standard's well A-1 blew in.

THE BOOM WAS ON

Following Standard Oil, other operators moved in, and wells sprang up over night. Hotels and rooming houses were swelled with oil prospectors, and in less than a month the population of Huntington Beach rose from 1700 to 5000. In November of the same year, the famous well, Bolsa Chica No. 1, blew in, producing 4 million cubic feet of gas and over 1700 barrels of oil per day. It took over 500 extra men to corral the oil that flowed from this well over the surrounding farm land.



THE FABULOUS ENCYCLOPEDIA LEASE

Some time before the discovery of oil, solicitors went from house to house in the Mid-West selling encyclopedias. Each purchaser was given a lot in Huntington Beach about a mile from the ocean but said to be on the ocean front. After Gester's suspicions were confirmed in oil, many encyclopedia purchasers became wealthy over night.

NEARLY $250,000 A MONTH

Standard's A-1 was the first of the 1213 wells which now stand in Huntington Beach. These wells are now pumping nearly a quarter of a million dollars worth of crude oil a month for the 167 producing companies which own them. This growth in oil production is typical of the expansion in Huntington Beach since it was a sleepy little city of only a few hundred people.

Today Huntington Beach is a city of over 6000 population and lays rightful claim to being an important agricultural and tourist area, in addition to oil. In 1948, over 3½ million people enjoyed the 4-mile span of perfect beach and the rolling breakers.

ANOTHER IMPORTANT DISCOVERY

Every month, more and more Telephone Companies across the nation are becoming aware of the great advantages to be had by adopting our Complete Directory Service Plan. Today, this plan is working effectively and profitably for the Associated Telephone Company, Ltd. in Huntington Beach, as well as for Telephone Companies in more than 1200 other cities and towns across the nation.

WHAT IS THIS PLAN?

As a result of our experience in publishing Telephone Directories for both large and small cities and towns from coast to coast, we have developed a flexible, efficient plan which includes the sale of advertising, compilation, proofreading and publishing. This plan, executed by our especially trained personnel, is our formula for producing accurate, attractive telephone directories that make more money for the telephone companies we serve.

May we explain how our Complete Directory Service Plan will overcome your directory problems?

GENERAL TELEPHONE DIRECTORY COMPANY

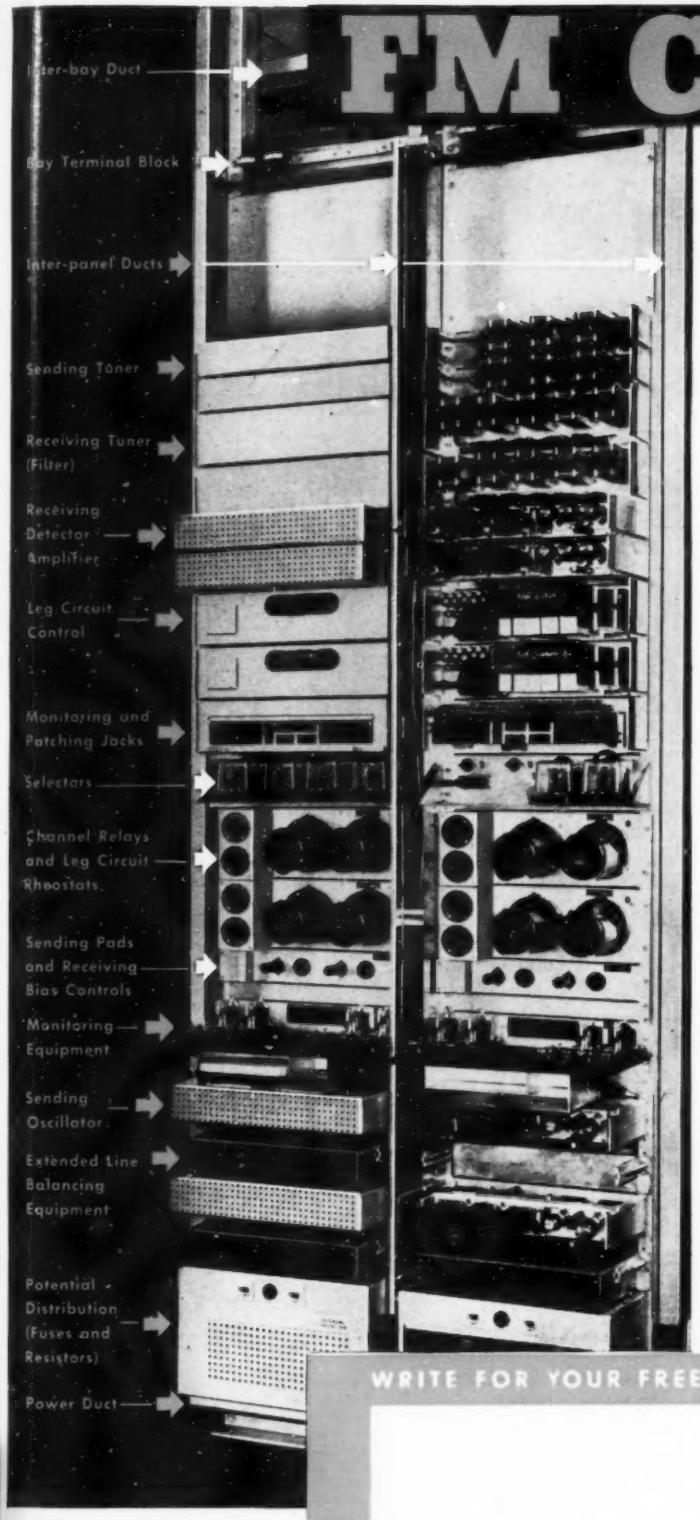
EASTERN OFFICES

185 North Wabash Avenue, Chicago 1, Illinois • Telephone—State 2-5478
G. Daniel Baldwin Building, Erie, Pennsylvania • Telephone 2-4187
420 Columbia Street, LaFayette, Indiana • Telephone 4854
Washington Building, Madison, Wisconsin • Telephone—Fairchild 6026

WESTERN OFFICES

604 Pine Avenue, Long Beach 12, California • Telephone 6-7221
1220½ Texas Avenue, Lubbock, Texas • Telephone 2-6330
Peyton Building, Spokane, Washington • Telephone—Main 8644

FM CARRIER



TELEGRAPH EQUIPMENT FOR IMPROVED TRANSMISSION

SUPERIOR PERFORMANCE

Provides a 10 db advantage over AM carrier with respect to interference from such sources as cross-talk, power line induction, etc. Unbiased operation against wide variations of signal level.

INCREASED FACILITIES

Voice-frequency telegraph carrier coordinates with group modulators, designed for use with this equipment, to provide frequency translations of groups up to 31 KC.

GREATER FLEXIBILITY

Readily coordinated with a wide variety of DC leg facilities. Can be integrated with most types of telephone carrier systems. Jack arrangement makes switching between circuits quick, simple. Standard and high-speed channels.

LASTING DEPENDABILITY

Rugged construction assures uninterrupted, dependable service. Designed—and proven under exacting operating conditions — for long service with a minimum of maintenance.

EASY MAINTENANCE

All assemblies easily accessible for inspection, service and maintenance.

For Quality Equipment to Meet Your FM Carrier Requirements—Call On BUNNELL

WRITE FOR YOUR FREE COPY OF THE *NEW* BUNNELL CATALOG

J. H. BUNNELL & Co.

215 FULTON STREET NEW YORK 8, N. Y.

BUNNELL

a key word in communications equipment ➡ Research, Engineering, Production and Testing facilities for equipment for: Wire Lines • Submarine Cables • Railroad Communication • Radio Airway Systems Municipal Signaling • Army and Navy Signaling • Carrier Current • Automatic Telegraph • Facsimile

IT SEEMS TO US . . .

One of our distinguished visitors this Spring was the Editor of The Relay, the excellent magazine of the Harrisonburg (Va.) Telephone Co., MISS ELIZABETH DULL. During her visit with our Staff Miss Dull informed us she was on a vacation trip west and that her trip to our Editorial offices was good training for the traveling she had before her. We did not dream her adventures in locating our office on the Northern boundary of Chicago had been so eventful. Check the April copy of The Relay to get the details. She, too, is her own camera-man.

• • •

It was our pleasure to attend a dinner given by R. A. PHILLIPS, Lincoln, Nebr., president of the Central Telephone Company, during the recent Executives Conference in Chicago at the Edgewater Beach Hotel. Mr. Phillips' guests included other Central executives: VERNE CLARK, TORAL DUCKETT, AL CLARK, MARTIN WANDRY, RAY RIORDAN, KENNETH DALLEY and LES GADDIS of the Automatic Electric Co. It was a real pleasure for us to join the group as the guest of their boss-man.

• • •

ED SAMP, well known operator of the LaCrosse (Wisc.) Telephone Company, is also well known in hunting and shooting circles as a championship skeet shooter. Ed has competed in very fast company with this hobby and has his share of the rewards. Mr. MAX McGRAW, of the parent company, is also quite a hand with a shotgun.

• • •

It was with much anticipation that we boarded the good ship "Mystery" of Boynton Beach, Fla. last month for our try at deep-sea fishing and the ultimate catch of a sailfish. My associates on the Staff dared me to give the results in this column. The sailfish was caught, not by the writer, but by our 11-year-old daughter, BRENDA. I caught a terrific sunburn and the fishing fever. And now to collect the bets!

The National Telephone Magazine

TELEPHONE ENGINEER and MANAGEMENT

MAY, 1949 **VOL. 53, NUMBER 5**

Editor, RAY W. SMITH • *Advertising Director*, ROY F. SMITH
Managing Editor, JOHN G. REYNOLDS • *Promotion Manager*, DON C. SORENSON
Washington Bureau, ROLAND C. DAVIES *and* FRED HENCK
Circulation Mgr., BERNADINE STEPHENS • *Production Mgr.*, MARGARET INDIA

ARTICLES

Standard Construction & Installation Practices	B. C. Burden	28
USITA Accounting Committee Report	H. C. White	32
USITA Plant Committee Report	G. W. Miller	32
USITA Traffic Committee Report	C. C. Donley	33
USITA Commercial Committee Report	Ralph Van Trine	60

— Coming Conventions 27 —

FEATURES

It Seems To Us		4
Telephone Engineer Newsletter		11
Editorial		21
Washington Bureau Reports	Roland Davies, Fred Henck	26
Iowa Convention Report		34
Ohio Convention Report		38
The Back of The Book	John G. Reynolds	78

DEPARTMENTS

Free Literature Department	8
New Products' Showcase	72
Buyers' Guide	72
Classified Advertising	74
Advertisers' Index	77

FRONT COVER: One of the few keystone arch stone bridges in America in a perfect state of preservation. The bridge was built across the "Fall Creek Gorge" over 100 years ago in Adams County, Ill., on the Illinois side of the Mississippi river from Hannibal, Mo., in the territory made famous by Mark Twain with his Huckelberry Finn and Tom Sawyer stories. Below this bridge about a hundred yards is a water falls which creates a large pool known to all the boys of the area as "The Old Swimming Hole" and to which a family of six boys in the area were won't to enjoy their favorite sport in the later days of the 19th century. Five of these boys are still living; the youngest is sixty years of age, and one is better known to most telephone people as the popular and well known president of the Northwestern Telephone Co., Freeport, Ill., Mr. J. I. Kennedy who contributed this photograph of the unique scene from his boyhood haunts to grace our cover.

Published monthly by TELEPHONE ENGINEER Publishing Corporation
7720 Sheridan Road - Phone Rogers Park 4-3040 - Chicago 26, Illinois

West Coast Representatives, BRAND & BRAND
1052 West 6th Street, Los Angeles, California

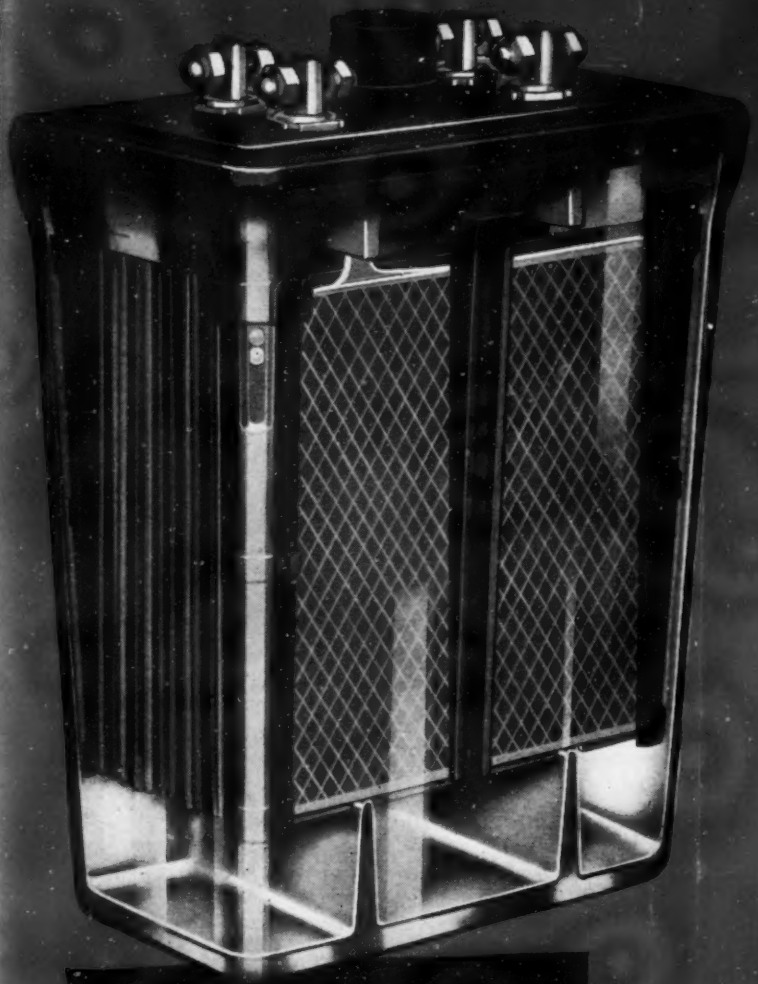
Copyright 1949 by Telephone Engineer Publ. Corp.

VOLUME 53, NUMBER 5. Published monthly by Telephone Engineer Publishing Corporation. Office of Publication, Pontiac, Illinois. Executive and Editorial Office, 7720 Sheridan Road, Chicago, Illinois. Subscriptions: U. S., Cuba, Mexico, $2.00 per year; Canada $2.50; in all other countries, $4.00. Single copies, U.S.A. 20 cents. Entered as second class matter at the post office at Pontiac, Illinois, under the act of March 3, 1879.

ONLY

GOULD Floté

GIVES YOU THESE TIME-TESTED FEATURES



1. **WEDGED ASSEMBLY**—another Gould "first." Corner locks, at points of greatest jar strength, maintain perfect plate alignment throughout battery life.
2. **SUPPORTED ELEMENT**—time-tested in the field. The element rests on lateral bottom supports which are molded into the tough Steel-Glass jar.
3. **MOLDED STEEL-GLASS JAR**—Tough, uniform in dimension, engineered to hold the element permanently in position. A time-tested Gould "first."
4. **BARRICADED OUTSIDE NEGATIVE PLATES**—Rigid, effective shields protect the element.
5. **SPRAYPROOF, LEAKPROOF COVER CONSTRUCTION**—Extra-deep cover seal, acid-tight post seal and sprayproof vent keep covers dry. You can install a Gould Floté near delicate instruments.
6. **POSITIVE PLATES SPECIFICALLY DESIGNED FOR FULL FLOAT SERVICE**—Extra heavy—5/16" thick. Exclusive Gould Floté grid alloy and grid design cut current consumption, increase life.

GOULD FLOTÉ

The only battery specially engineered for full float service—proved by 14 years of customer acceptance.

GOULD

STORAGE BATTERY CORPORATION

TRENTON 7, NEW JERSEY

Always Use Gould Automobile and Truck Batteries

HE WORKS SAFE!

BELT No. 88

BASHLIN'S Tool-Dee Belt
10" Body Movement

The sliding tool loops keep tools always within easy reach. The built-in extra safety factor saves the Safety Strap from wear . . . and, man, it's comfortable too! When it's a Bashlin Safety Belt, you *know* it's right.

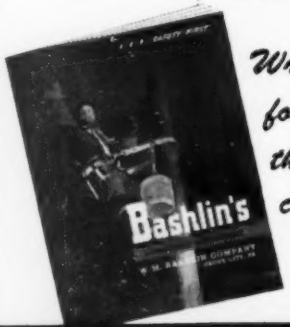
One piece aluminum sleeve adjusts from 15" to 18" in multiples of ½". Locked in place with standard steel screws.

Another First

Comfort on the job, lightness and safety combine in Bashlin's adjustable Climber with removable gaff . . . Forged of aluminum alloy, the Bashlin Climber is lighter than conventional climbers and the *Same Strength as Equivalent Steel.* It's form fitting and has all the original Bashlin features.

No. BD 14

Removable gaff forged from alloy steel, features triple locking device with standard tested steel screws.



Write for this catalog

W.M. BASHLIN COMPANY
GROVE CITY 1, PA.

NEW CAPITAL:—"In order to attract new capital to our businesses we will be required to show what we have in the way of assets and liabilities and what our past performance has been as far as net income or profits are concerned.

"To do this we will need good records of our income and expenses, our withdrawals and dividends and of our property and plant.

"We will have to convince the prospective investor (and this may mean yourself) that the outlook for the future is such that the capital invested will be reasonably secure and that it will 'earn its keep' during the period in which it is invested.

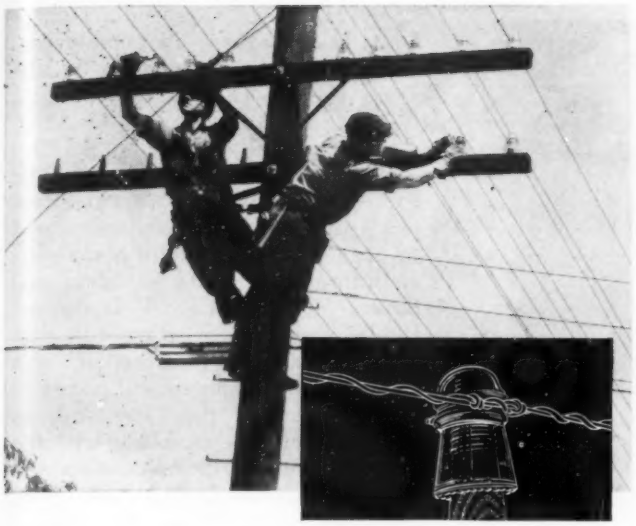
We need good records also to convince rate-making bodies that our rates for services should allow us a fair return upon our investment. But what is needed more than good records, is: (a) Good equipment which will enable the telephone operating man to render satisfactory service at all times; (b) Good equipment that will operate at a minimum expenditure for labor in the operation and maintenance thereof; (c) good management and sound judgement in the operation of the business, and (d) good rates for services rendered."—**Excerpt from address delivered at the 1949 Texas Telephone Association convention by Harry C. McLuskey, executive vice president, Kellogg Swbd. & Supply Co.**

• • •

RATES:—"Our industry has been suffering from timidity in asking and in securing adequate rates and in educating our subscribers concerning the problems involved in serving them. Some State Commissions are now criticizing companies for their long delay in asking for the adequate rates required to enable a company to furnish good service. This is certainly a sad commentary, not only on the lack of intelligence, but on the lack of courage and business management of our industry.

"It may be that some of you still have not secured adequate rates in this lush period of prosperity that has followed the end of the war. The rapid drop in agricultural products we have had the past year will make your subscribers think considerably more about a rate increase now than they would have prior to that time. If you have not an adequate rate, I would suggest that you go home and immediately put an adequate rate into effect. It may be later than all of us think.

"I would, however, suggest one thought. If you are not giving good service, or unless you are preparing to make the necessary improvement to give good service to your subscribers, you have no right to an increase in rates. Frankly, I know a great many companies in Iowa who are getting all, and in some cases more, than their service is worth to their subscribers. I do not mean to say by this that companies giving good service are included, because they are not. In most cases, their rates are inadequate to maintain the plant, provide for improvements, betterments, and pay an adequate return on the capital investment."—**Excerpt from address presented by Clyde McFarlin, Montezuma, Iowa, at the 1949 convention of the Iowa Independent Telephone Association.**



How to take the "hum" out of your wires

THERE's an easy way to get rid of wire hum . . . and the vibration that causes it. Use U·S·S American Armor Rods. Laboratory and field tests have proved the ability of these specially engineered armor rods to dampen very effectively all destructive vibration.

By combining U·S·S American Armor Rods and Amertel-135 Telephone Wires, you get a line with great strength, low electrical resistance. This combination is especially recommended in long span construction, where vibration stress is unusually high. Amertel-135 has tensile strength more than 2½ times that of standard B.B. telephone wire. Because of this high strength you can often cut your pole requirements by 50% . . . and you cut installation and maintenance costs at the same time.

Our Amertel-85 Telephone Wire is recommended for medium span construction. It has the stamina to withstand heavy wind and ice loads, assures long, trouble-free service. Both Amertel-135 and Amertel-85 increase transmission efficiency at voice frequency.

Write for complete technical data on Amertel-135 and -85, and on our regular grades "E.B.B.," "B.B." and "Steel."

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA STEEL COMPANY, SAN FRANCISCO
PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

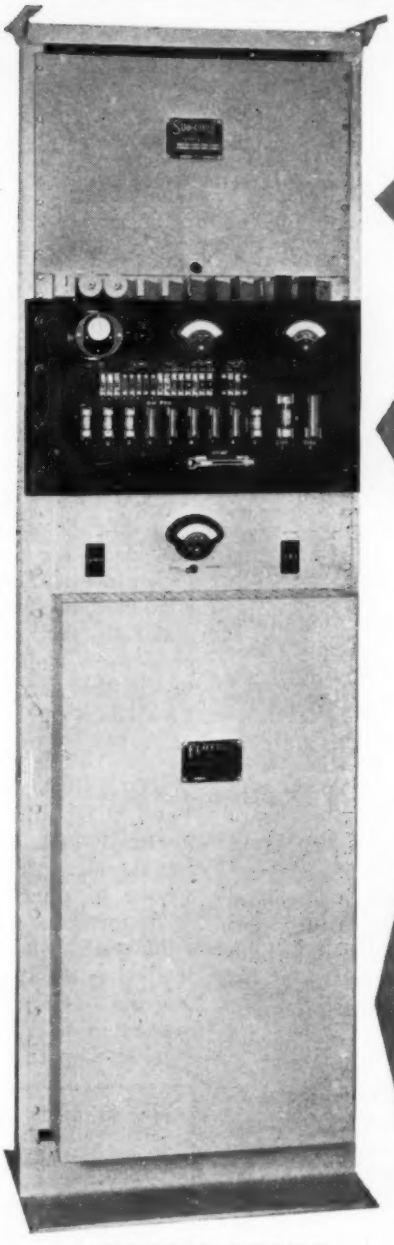
Look for this tag.
It is your assurance
of highest quality wire.

USS **AMERTEL**
TELEPHONE & TELEGRAPH WIRE
UNITED STATES STEEL

SAVE • SAVE • SAVE *with*

LORAIN'S COMBINED RINGING AND BATTERY CHARGING UNIT

A COMPLETE POWER PLANT ON A SINGLE FRAME



BC 20

½ Amp.
Sub-Cycle
Static Ringing
Converter

High-Low Voltage
Alarm Circuits
Power
Distribution
Panel and
C.E.M.F. Controls

1200 B FLOTROL

Rated 24 Amps.
51.6 Volts
with Maximum
Overload
Capacity tc
40 Amps.

Self-Protecting
On Overloads

For 7'-23"
Relay Rack

- SAVES SPACE
- SAVES INSTALLATION TIME
- SAVES MAINTENANCE COST

BECAUSE THERE ARE ***NO MOVING PARTS***

FLOTROL
PARTNERS IN DEPENDABILITY
SUB-CYCLE

Get complete details from Your Dealer or write direct.

LORAIN PRODUCTS CORPORATION • DEPT. L
1122 F STREET, LORAIN, OHIO

Free Literature Department

New Product Literature of Practical Interest

All literature described in this department may be obtained by sending in the handy blank at the bottom of this page.

BUILDING MAINTENANCE: Latest Stonhard roofing folder shows how maintenance men can quickly and easily stop and prevent roof leaks whether the roof is tin, iron, concrete, slag, gravel, tar paper, or felt. Stonhard Roofing Folder shows how roofs may be economically repaired without involved preparation—simply by using a brush or a trowel.—*Request FL* 311.

CONCRETE DRILL BIT: A four-page, two-color catalog containing complete data on the company's line of rotary concrete drill bits has been issued by the Tilden Tool Manufacturing Co.

Drills listed in the catalog range from ¼-in. to 4-in. in diameter and from 5" to 18" in length. Extra shanks up to 36" long are also available.

The catalog also contains general information on concrete drilling and use of the Tilden rotary drill, which will penetrate concrete at speeds of up to 6 in. per minute.—*Request FL* 312.

CORROSION: New technical bulletin describes the resistance of high nickel alloys to corrosion by sulfuric acid. While the bulletin is technical in nature, it is written so that it can be readily understood by non-technical as well as technical staffs of industries in which corrosion by this useful but highly corrosive agent is a problem. Performance of over 30 different nickel-bearing materials in a wide range of services is discussed. The bulletin contains 86 tables and 33 graphs and photographs in addition to text matter.—*Request FL* 313.

DUPLICATORS & SUPPLIES: Attractive 12 page "Heyer Quality" catalog presents complete line of duplicators and integrated supplies. Catalog also presents information on equipment for preparing and processing stencils that will prove invaluable to telephone managers.—*Request FL* 314.

ELECTRIC ALLOYS: New 26-page booklet describes the electrical and electronic properties of 18 high nickel alloys. Designed primarily for engineers, it cites typical uses of these materials, their mechanical and other properties, and the various forms in which they are available.—*Request FL* 315.

HOLE PUNCHING UNITS: Wales Type "CJ" Hole Punching Units illustrated and described in a new functionally colored catalog are designed to punch holes up to 1⅛" in diameter in metal up to ¼" thick mild steel. Also illustrated and described is the new Wales Type "NJ" Notching Unit which provides a maximum 5" x 5" 90° corner notch in sheets up to ¼" thick mild steel. These Hole Punching and Notching Units may be used in combination for punching and notching in the same operation.—*Request FL* 316.

POLE BUYERS GUIDE: The Preserving Division of Koppers Company, Inc., has made available a new 18-page technical bulletin planned as an information guide for users and buyers of poles. The "Pole Buyers Guide" presents service records, electrical resistance information, and comparative cost figures of pressure-creosoted poles. Pole specifications for all species as established by the American Standards Association and accepted by the largest pole users are presented in detail. The booklet gives the manufacturing requirements for bark removal, sawing, trimming, framing, and marking poles and defines widely used wood terminology. —*Request FL* 317.

ROOF FAILURES: To help prevent failures caused by unusual climatic conditions or atmospheric concentrations of smoke, fumes and other corrosives, a new publication has been issued by International Nickel. The bulletin, "Basic Application Data", lists suggested gauges for principal exterior building applications of the soft-temper Monel roofing sheet introduced last year. These suggestions are based on the records of existing Monel installations, veterans of 35 to 40 years service in some of the most severe conditions in the country. This new folder also contains information on the availability and relative cost of Monel roofing sheet. Also included are fabricating and installation tips and a specification wording for architects & engineers to use when specifying Monel.—*Request FL* 318.

TELEPHONE ENGINEER PUBLISHING CORP.
7720 North Sheridan Road
Chicago 26, Illinois

Please forward the following literature described in the Free Literature Department of the May, 1949 issue of TELEPHONE ENGINEER AND MANAGEMENT: (Check information desired.)

FL 311.....FL 312.....FL 313.....FL 314.....

FL 315.....FL 316.....FL 317.....FL 318.....

Name ..... Title .....

Company .....

Street Address .....

Town ..... Zone ..... State .....

Announcing NEW PARAGON H.T. BRONZE DROP WIRE

AND

Now you can get them—the old proven, dependable, economical drop wires. The same old names—the same superior quality—

Yet, both entirely *new*—new all through, and proven so superior that you will want to standardize on them.

NEW Ironite Genuine DROP WIRE

NEW PARAGON H. T. BRONZE DROP WIRE

A high tensile B.B. bronze conductor encased in a wonderful rubber and Paraprene jacket or with rubber and braid insulation, U.R.C. Specification, *Stearine* and *Mica* finish, that assure years of service under most difficult conditions.

NEW PARAGON GENUINE IRONITE

A new formula iron conductor strong, flexible, easy to work, sheathed in a new process rubber insulation and special cotton and mineral fiber braid, Stearine pitch and Mica impregnated U.R.C. Specifications. Long life—economical.

To get the full story of these remarkable new drop wires, write today for Bulletin 12 and complete price schedules.

Telephone Division

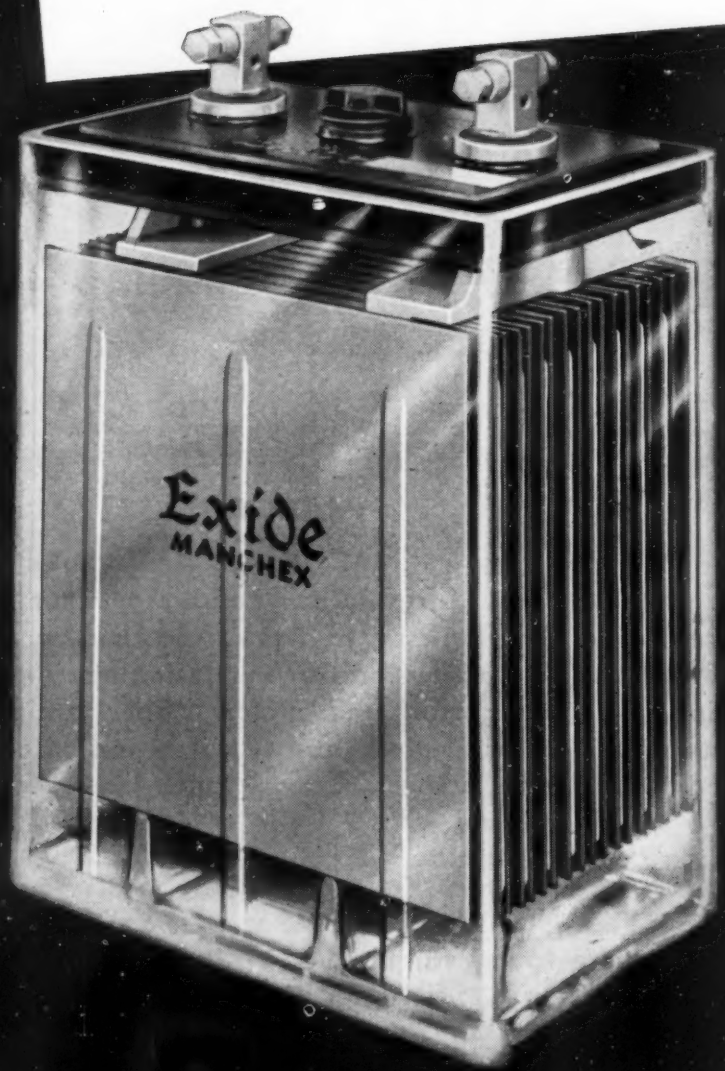
PARAGON ELECTRIC CO.

Two Rivers • Wisconsin

THE NEW EXIDE-MANCHEX BATTERY

POWER . . . PERFORMANCE . . . ECONOMY

for Telephone Service



Exide
BATTERIES

An important feature of the new Exide-Manchex Battery is the famous manchester positive plate with its unique lead button construction. The buttons, rolled strips of corrugated lead. are pressed into holes of the lead-antimony grid. Forming action expands the buttons and locks them securely in place. Only a comparatively small portion of the total lead is formed initially into active material . . . the remainder is available for gradual conversion in service.

Negative plates, separators and other elements are designed to match the long life and efficiency of the positive plates. All combine to provide a battery of exceptional power and long-lasting, trouble-free performance.

Use Exide-Manchex Batteries for all stationary requirements—common battery, emergency reserve, signaling, PBX and other applications. Their use is assurance of dependability, long life and low cost maintenance.

1888

DEPENDABLE BATTERIES FOR 61 YEARS

1949

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 32
Exide Batteries of Canada, Limited, Toronto
"Exide" *Reg. Trade-mark U. S. Pat. Off.*

NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*

ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

NEWSLETTERS *on Alternate Weeks*

May 15, 1949

Dear Sir:

Proposal of Sen. Johnson (D., Col.), to attach "rider" amendment to oleomargarine tax repeal bill calling for widespread excise tax reductions, including levies on communications service, has been voted down 7-6 by Senate Finance Committee. Sen. Johnson said he would offer amendment when bill reaches floor. Meanwhile, Finance Committee Chairman George (D., Ga.), who opposed Johnson amendment, was said to have suggested excise revisions as Senate revision of Social Security extension bill.

* * *

Largest loan approval specifically for radio telephone & other communications facilities ever issued by Rural Electrification Administration, recently went to Dairyland Power Cooperative, LaCrosse, Wis. Dairyland Coop received permission to spend $119,000 for short-range & long distance radio facilities, carrier telephone, telemetering & supervisory communications.

REA also approved four other loans to cooperatives which included amounts earmarked for radio telephone facilities. Loan approvals, were issued to Big Sandy Rural Electric Cooperative, Eau Claire, Wisc.; Mountain View Electric Assoc., Limon, Colo.; Orange County Rural Electric Membership Cooperative, Orleans, Ind.

* * *

American Tel. & Tel. Co., Illinois Bell Tel. Co. & Southwestern Bell Tel. Co. requested that FCC dismiss request of Walter S. Berkman & his associates, Harry R. Booth & Milton Booth, that Commission hold hearing on latter's demands that telephone companies be compelled to furnish attachment which is claimed would give indication that party using telephone is receiving another call at same time. FCC had already dismissed complaint against companies; petition was then filed by proponents of device for hearing & oral argument.

* * *

Promoters of incentive prize contests are studying implications of opinion letter of Wage & Hour Administration holding that employes must be compensated for their extra-hour participation in contests which promote their employer's business. Ruling by Wage & Hour Administrator William R. McComb holds contest compensation must be figured into regular rates of pay.

Under ruling, there need not be special contest compensation if employe's efforts are confined to regular working hours for which he is otherwise compensated. Employe's regular pay is affected as soon as he wins prize, or obtains compensation for after-hour contest activity.

Mr. McComb noted that employers & employes are entitled to arrive

at contest compensation at any rate they choose, consistent with minimum requirement of 40c per hour for 40-hour work week, plus time and half for overtime. For overtime purposes, time and a half rate is "the weighted average of the various rates" paid employe for his job and contest dues.

* * *

Emeline-Iron Hill Tel. Co., Emeline, Iowa, on May 3 held official opening of its new automatic exchange. Program featured broadcast originating at Emeline over WMT, movies on telephone service, informal talks by folks who helped get job done, address by C. C. Pearce, chairman Iowa Independent Tel. Assn. Small Company Committee, & tours through new automatic central office. (See editorial — "Free Enterprise At Work" — FORTNIGHTLY TELEPHONE ENGINEER, Feb. 1, 1949, page 13, for full story of Emeline project.)

* * *

Federal Communications Commission has made public series of new rules & changes designed to cover mobile radio services. FCC ruling affects 50,000 authorized stations & about 200,000 mobile units. A number of new classifications are set up under the new ruling. For instance, three new classes are created to take place of former "experimental general mobile radio." They are land transportation radio services, including former railroad radio service & industrial radio services.

Former emergency radio service will be known as public safety radio services & the utility radio classification is transferred to new industrial services group. Transit utility mobile operations will be transferred to the land transportation group, along with the railroads. The land transportation radio group, covering taxicab, railroad, intercity bus, highway trucks urban transit & automobile emergency services, is to be given 47 frequencies. Forty-one of these have been allocated to the Chicago area for use by 32 railroads operating in and out of that city & 39 were allocated for use in other areas of the country.

* * *

Highlights: Southwest Tel. Co., Pratt, Kas., applied for rate increases at Pratt, Liberal, Coldwater, Bucklin, Meade, Fowler, Greensburg, Minneola & Plains.....Directors of Southwestern Associated Tel. Co. added Neeley G. Landrum of Dallas & V. E. McInnis of Oklahoma City to board of directors....Home Tel. Co. completed conversion of Ridgway, Pa., to automatic operation....Lincoln (Neb.) T. & T. installed new swbd. at Louisville, Neb....Glencross (S.D.) Tel. Assn. organized; new group plans $7,800 construction project....Citizens Tel. Co. completed conversion of Linn Grove, Ind., to automatic operation.

Rural residents of Roseville, Ky., organizing new company; will install new swbd. at Roseville....Lima (Ohio) T. & T. Co. installing automatic system at Delphos, Ohio....Atomic Tel. Co., Hyannis, Neb., filed articles of incorporation....Oswego County Independent Tel. Co. announced $950,000 modernization program....V. E. Rossiter elected pres. Cedar County Farmers Tel. Co., Hartington, Neb.

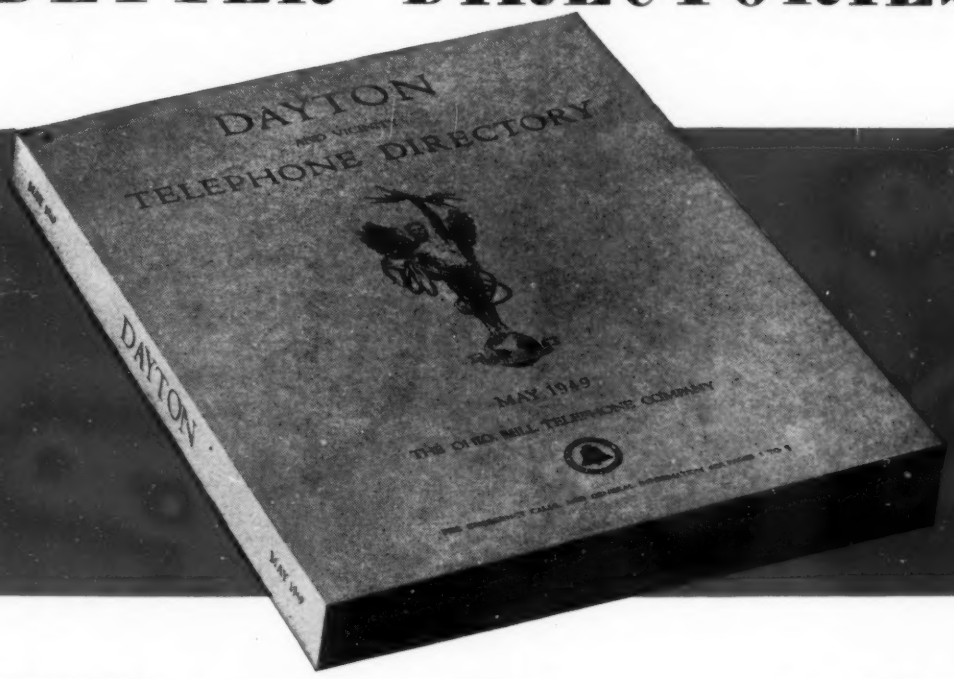
Ray Smith

Ray W. Smith, Editor

Since 1910 L. M. BERRY & CO.

has helped Telephone Companies produce

BETTER DIRECTORIES



BERRY Salesmen always maintain sound and friendly customer relations while making maximum advertising sales

1. PLANNING —Each BERRY sales canvass is carefully planned before a single call is made. Prospects are listed on cards and assigned to salesmen by areas. No sale is overlooked.

3. COMPILING —BERRY compilation units are the last word in accuracy as they draw up ad schedules, check alphabetical and classified manuscripts, etc.

Through the years since 1910 more and more telephone companies have turned to L. M. Berry & Co.—for better Planning and Selling of "YELLOW PAGES" advertising. As a result, BERRY men today serve over 180 Independent and Bell Telephone Companies in more than 4000 cities and towns in 24 states. For these companies we produce highly desirable operating revenue from advertising sales. We would welcome an opportunity to do the same for you.

L. M. BERRY & CO.

Directory Advertising Exclusively

2. SELLING —Well-trained and supervised BERRY salesmen plan each call in advance . . . present layouts and copy . . . show all prospects the benefits of directory advertising.

4. PRODUCING —Skilled BERRY production men follow through on artwork, cuts and type . . . can arrange for complete printing and binding of directories.

L. M. BERRY & COMPANY • Hulman Building • Dayton 2, Ohio • Michigan 7421 • L. D. Loop 16

14 BRANCH OFFICES: Birmingham, Alabama • Bristol, Chattanooga, Knoxville, Memphis and Nashville, Tennessee • Harrisburg, Pennsylvania • Jackson, Mississippi • Louisville, Kentucky • Milwaukee, Wisconsin • New Orleans, Louisiana • Rochester, New York • Tampa, Florida • Warsaw, Indiana

BERRY REPRESENTATIVES SELL ADVERTISING FOR MORE TELEPHONE DIRECTORIES THAN ANY OTHER COMPANY

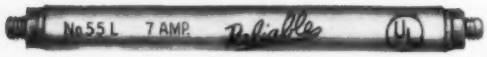
THESE FEATURES MAKE IT

Reliable

1. One-Piece Design
   - Special low absorption base
   - Simplified mounting and installation
2. Reliable Sawtooth Discharge Blocks
   - Self-cleaning; no dirty carbons
   - Dissipate static with no time lag
   - No unnecessary grounding
3. Phosphor Bronze Spring Clips — Silicon Bronze Binding Posts & Nuts
   - Permanent contact

Reliable

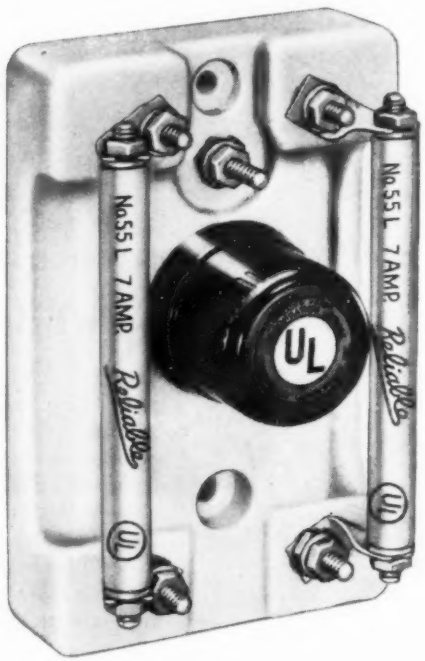
955
INDOOR
STATION PROTECTOR



These features—and others, too—assure you relative freedom from station maintenance problems. Reliable's 955 Protector is easy to install, makes a neat appearance, with readily accessible connections.

Reliable 955 Protector furnished with No. 55L Ceramic fuses. Listed as standard by Underwriters' Laboratories.

Write for new Bulletin T



Ask Your Jobber

Reliable

ELECTRIC COMPANY

3145 CARROLL AVENUE • CHICAGO 12, ILLINOIS

OVER 40 YEARS' *Service* TO THE TELEPHONE INDUSTRY

. . . It's Copperweld Line Wire

With Copperweld* Line Wire on the job you can stop worrying about blizzards, ice loads, sub-zero temperatures, high winds, heat and rain. For Copperweld resists these severe weather hazards. Because of its alloy steel core, Copperweld is 2 to 3 times stronger than hard drawn copper wire—has greater tensile strength than any wire having comparable electrical properties.

And Copperweld's thick copper covering affords better voice and high frequency transmission characteristics than any other high strength conductor. In addition, Copperweld is light in weight, pliable and easy to string—and of course it's rust-proof. So when severe weather strikes your territory, be prepared—with Copperweld!

COPPERWELD STEEL COMPANY
Glassport, Pa.

SALES OFFICES IN PRINCIPAL CITIES

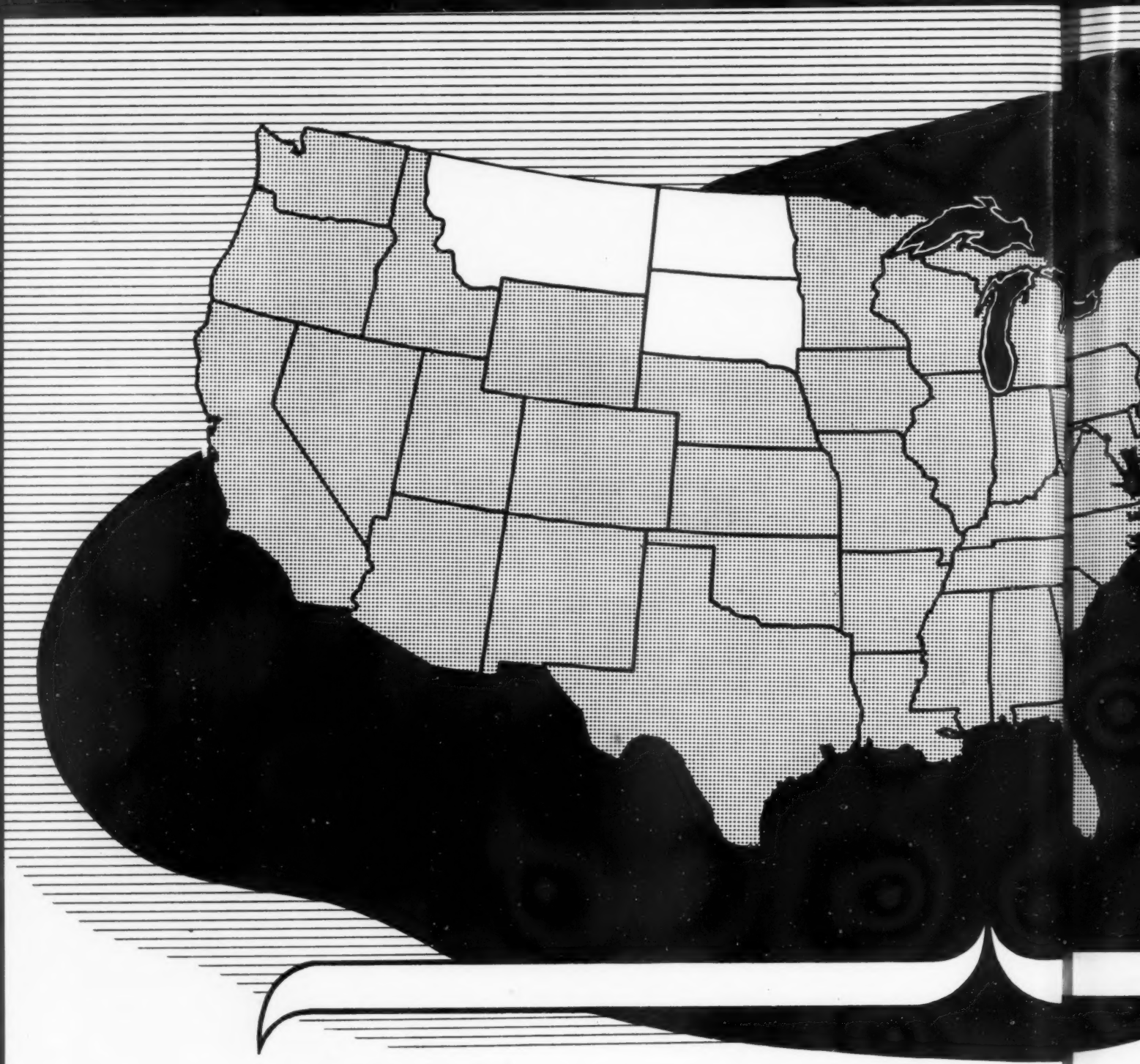
*Trade Mark

Copperweld
TRADE MARK

NON-RUSTING
LINE WIRE

GRIP-FLEX 30
The Ideal Insulator Tie for use with Copperweld Line Wire

SOLD BY LEADING DISTRIBUTORS



CARRIER

Dependable Kellogg telephone carrier is designed to operate comfortably over a circuit 30 db long. That equals more than 250 circuit-miles of .104 copper wire, and insures plenty of reserve power on shorter circuits.

All adjustments except voice and carrier output-levels are pre-set. The Kellogg Carrier needs no oscillator synchronization, no frequency adjustments in the field. It's solidly built too, to allow trouble-free peak performance regardless of heat or humidity. See the new Kellogg #11 Catalog for complete data.

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

Established·1897

CARRIER AND REPEATER

6650 SOUTH CICERO AVENUE • CHICAGO

Nation-Wide Acceptance!

Kellogg Carrier and Repeater are being chosen throughout the field

BECAUSE THEY ARE DEPENDABLE

(Check the map for proof! Shaded areas show states where operating companies are using Kellogg Electronic Transmission Equipment.)

REPEATER

Kellogg voice frequency telephone repeater can be used on any circuit which will carry regular telephone transmission. Its genuine bandpass, sharp cut-off filters insure stable, high gain operation under varying line conditions.

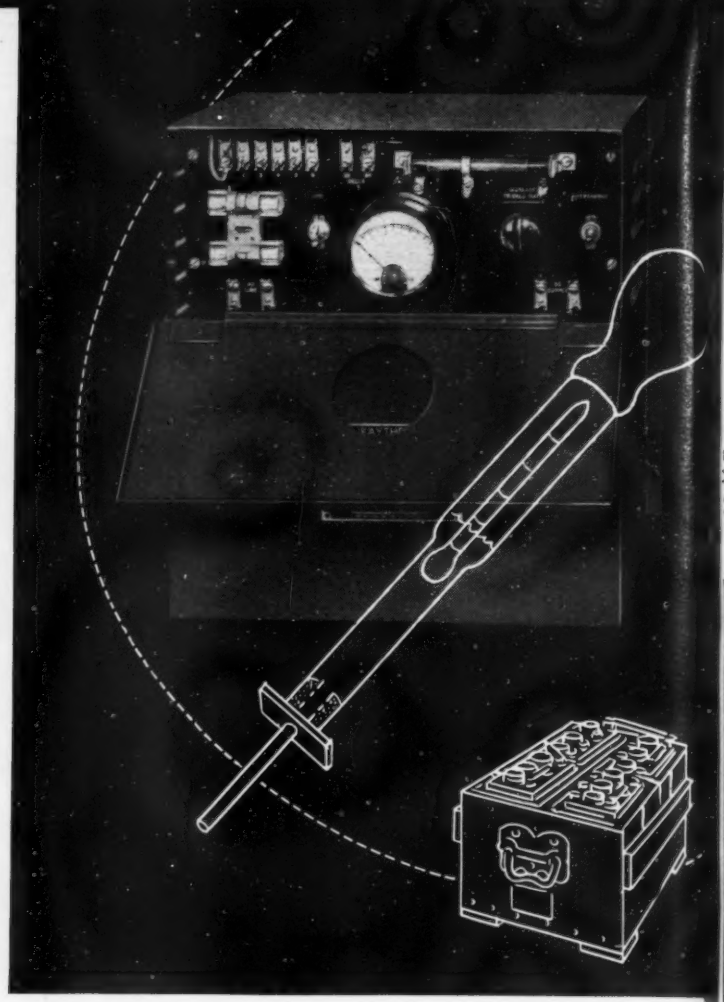
Adjustment of resistance and capacity in the balancing network requires no strapping. All you do is set the dials! The Kellogg repeater mounts on a standard 19″ equipment rack, and is "unit"-constructed to provide extra flexibility. Service is uninterrupted as there's no need to turn down the circuit during routine inspection and maintenance.

WRITE TODAY FOR FULL INFORMATION

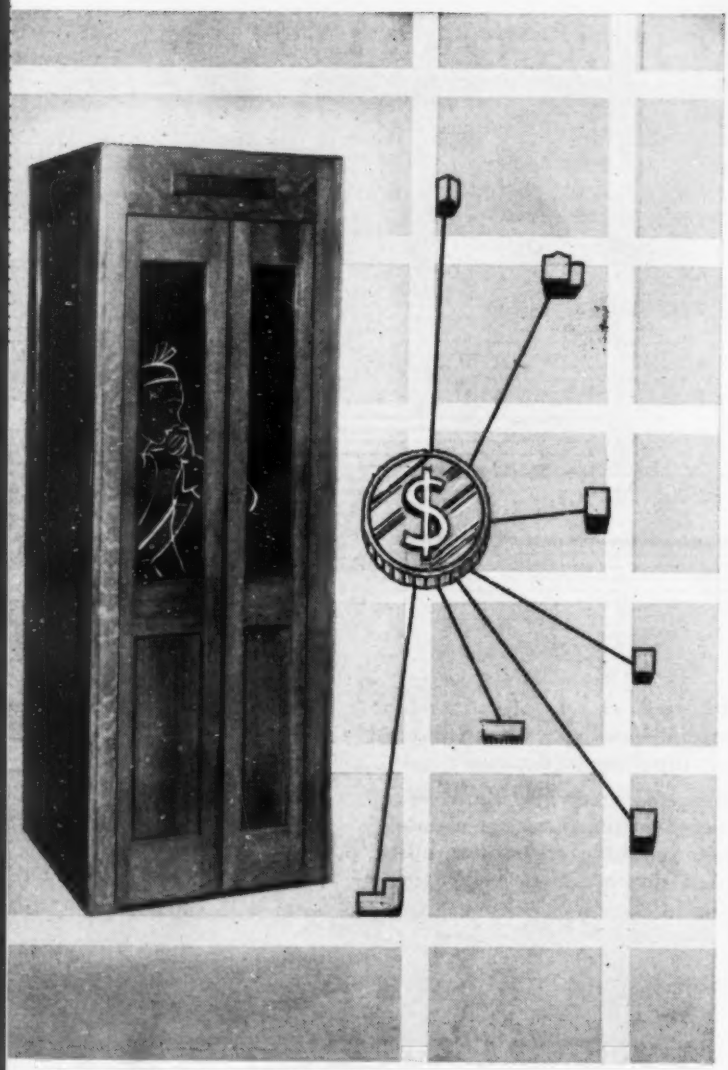
Successful INDEPENDENT TELEPHONE MAN Says:

CHAS. W. CHEENEY, Chesaning Home Telephone Co., Chesaning, Mich.

"For the past 25 years, Kellogg's consistent high quality merchandise and prompt service have made it a pleasure to do business with them."



Tip-Top Shape! Automatic storage battery charging ends operating troubles caused by over- or under-charging. Keeps batteries in tip-top shape—fully-charged at all times. RectiChargeR automatic charging prolongs battery life. That's why this RAYTHEON MANUFACTURING CO. unit is so popular with telephone men everywhere!



Make Every Pay Station a Paying Location! Everywhere they're used, modern Churchill booths attract extra patronage and help boost revenue. That's because these booths give the public the privacy, roominess and comfort it wants. Above is the CHURCHILL CABINET COMPANY'S No. 100 booth, with automatic light switch and ventilator.

for EASIER ORDERING PROMPT HANDLING QUICK SHIPMENTS

...send your next order to KELLOGG

When you order from Kellogg, you fill out just ONE order form for *all* your line supplies. Saves you time and work! Then your order gets prompt attention by experienced telephone men. No chance for slip-ups here! Finally, we ship quickly, from the distribution point nearest you. It's fast, sure service, and every item is *guaranteed!*

For Service from a Nearby Distribution Point, Order Your Line Supplies from:

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

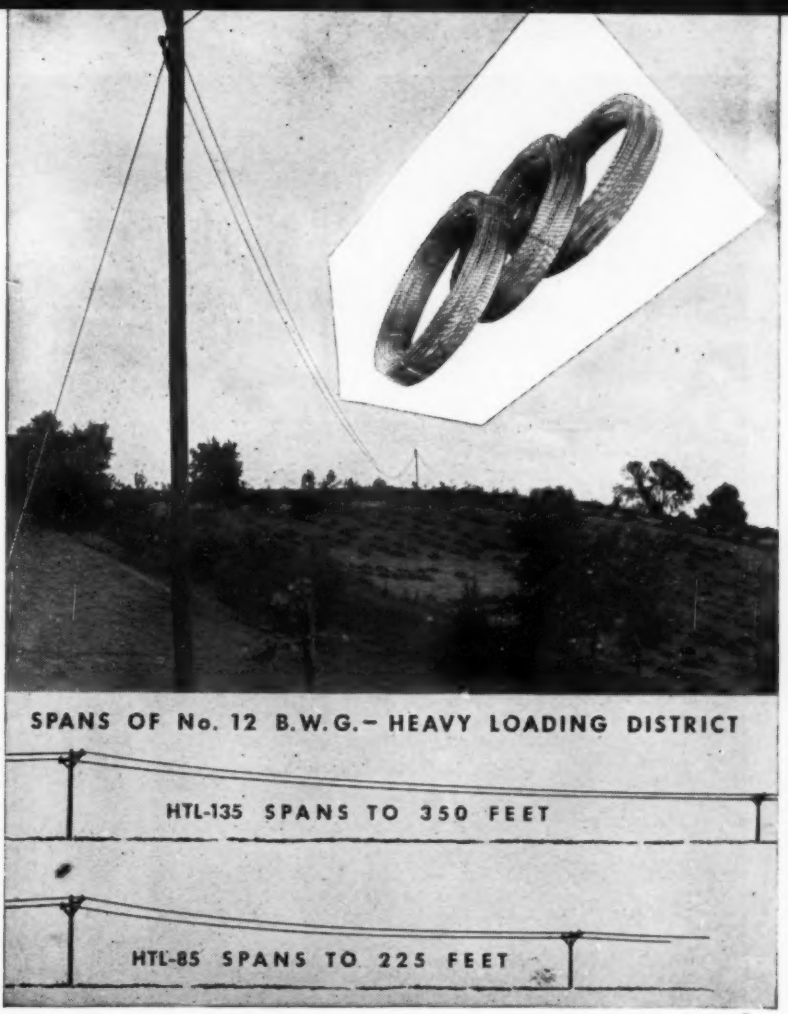
SUPPLIES

Factory and General Offices: 6650 SOUTH CICERO AVENUE, CHICAGO 38, ILL.
Branch Offices: KANSAS CITY • SAN FRANCISCO • ST. PAUL • LOS ANGELES

ALL OF THE ABOVE ITEMS MAY BE QUICKLY AND CONVENIENTLY ORDERED FR IE KE

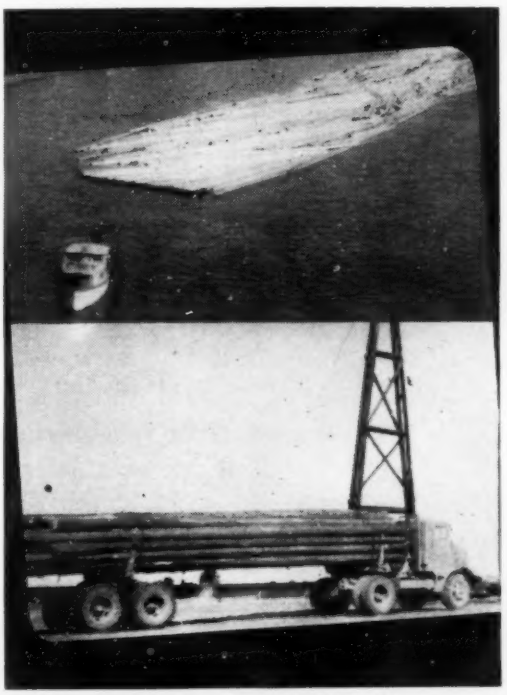
"Attention the universe: by kingdoms, right wheel!" With these words, Samuel Morse clicked off the first telegram, Jan. 24, 1838. Since early days, Hemingway Insulators have served communications. Today made by AMERICAN STRUCTURAL PRODUCTS CO., they're standard for quality.

Dead-Ending Is Easier when you use Nicopress Sleeves and Tools. Just pass wire thru sleeve and compress both ends of sleeve with the Nicopress Tool. Finished dead-end is stronger than the wire itself. Nicopress Tools and Sleeves are made by NATIONAL TELEPHONE SUPPLY CO.

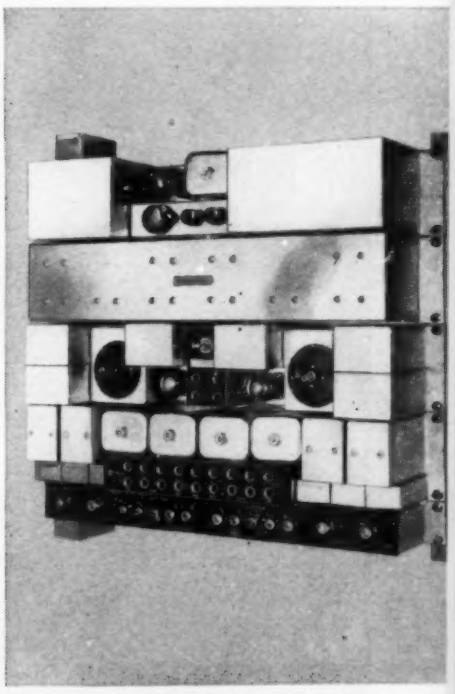


Save Two Ways—on line wire replacement and construction by standardizing on INDIANA STEEL AND WIRE CO's Crapo HTL-135 and Crapo HTL-85 Line Wire. Because of their high-tensile strength, these wires permit long spans, enable you to realize substantial savings in construction and maintenance costs. Galvanized by the famous Crapo Process.

urable and Silent—The Sub-Cycle Ringing onverter changes frequency without any mov- g parts. As a result, wear and consequent djustment and maintenance are virtually iminated. This LORAIN PRODUCTS CORP. atic-type converter comes in several models.



Famous for Strength and Durability, Northern White and Western Red Cedar poles flow toward the MAC GILLIS & GIBBS CO. plants in a steady stream. There they're processed and creosote-treated to insure longer life. Order them *now* and watch replacement costs drop!

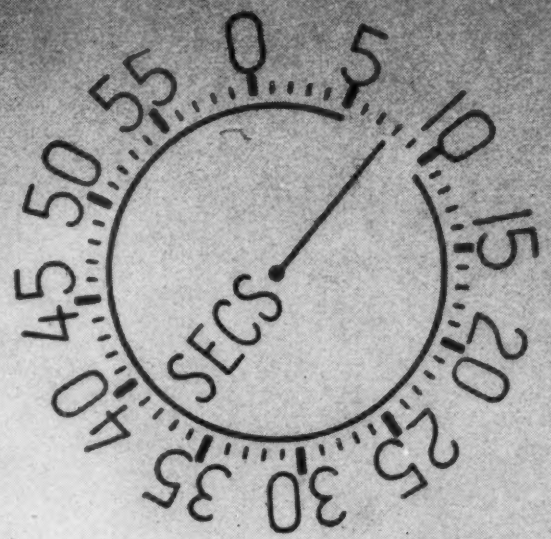


For Strong, Clear Toll Transmission and a quiet circuit, use the Kellogg Repeater. New, sharp cut-off filter aids in obtaining maximum usable gain. Important features are "unit" construction and ease of adjustment. Made by KELLOGG SWITCHBOARD & SUPPLY CO.

Every second counts

WHEN

CALCULAGRAPH
figures toll time!



Every minute and every second of every toll message is accurately computed by CALCULAGRAPH. A permanent printed record is made of each message individually with no calculating or pencil work required of the operators at any time. Modest initial cost makes a CALCULAGRAPH a paying investment right from the start in any exchange—large or small.

CALCULAGRAPHS are made in several models and are adaptable for any type of switchboard installation. When busy spots develop at certain hours, CALCULAGRAPH pedestal portable mounting can be employed to speed message handling efficiently and accurately. Complete catalog information is available on request written on company letterhead.

CALCULAGRAPH COMPANY

SUSSEX STREET • HARRISON • NEW JERSEY

EDITORIAL

LETTER TO A CONGRESSMAN

DEAR CONGRESSMAN:—

IF YOU had announced during your campaign that you intended, if elected, to help start the socialization of an important American industry, or even part of it—then it's a safe bet that you wouldn't be in Washington now.

Or if you had said that you intended to kick a lot of small American businesses around, the result would have been the same.

We don't think you had, or have, any such intentions. But, if you don't watch your step, you'll be doing those things just the same. For proof of that, read the following.

You are to be called on to vote on legislation which purports to be for the purpose of putting telephones on farms, and which would authorize Rural Electrification Administration to lend government money for telephone purposes. But, as you will see upon analysis, the terms upon which this money would be loaned will put a large number of existing, small, privately-owned Independent telephone companies out of business, and would put telephone service in many and large rural areas of the country under the domination of a government bureaucracy.

And—believe it or not!—this legislation would actually authorize bureaucracy—to lend government money for the purpose of building duplicate telephone plants to compete with—and run out of business—existing small telephone companies.

Let us make this clear! The bill now pending in the House of Representatives (H. R. 2960) would allow REA-dominated cooperatives and municipalities and other public agencies to acquire or **even to compete with existing** telephone companies in areas of considerable size and in hundreds of small towns. In fewer than ⅓ of the states would such agencies be required to obtain certificates of convenience and necessity in order to duplicate existing telephone plants.

Thus, if a small privately-owned telephone company refused to sell its business to a government-financed agency at a price fixed by that agency, then the agency could undertake to run it out of business by building, with government money, a duplicate plant to compete with it!

In all your legislative experience, Mr. Congressman, you'll probably never find a more outrageous example than that of government kicking small business and free enterprise around. Or of Congress doing that—if Congress enacts this legislation.

There are around 11,000 Independent telephone exchanges in this country. Several thousand of them are in the category discussed above. Most of these are locally-owned small businesses, created and existing under the American system of free enterprise.

The telephone industry has added near 1,500,000 additional farm telephones since material and manpower became available for the purpose after the war. It is installing hundreds more daily.

There is no evidence of clamor from farmers themselves for government-subsidized telephones. The clamor for this legislation is coming, apparently, principally from REA.

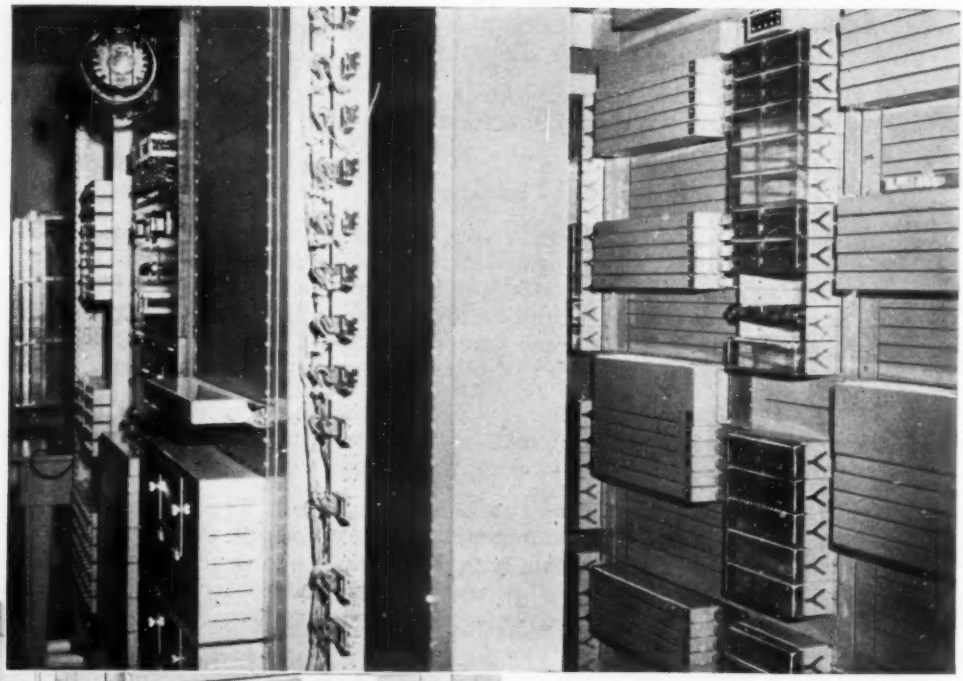
If government loans are to be made available to the small units of the telephone industry, Mr. Congressman—and they could use them, like most other small businesses—then let them be made available as honest-to-God loans.

Not in money to be provided in such a manner that it will inevitably result in freezing out, with government money, many small existing telephone businesses, or in a return to the horse-and-buggy days of wasteful and publicly inconvenient and expensive duplication of telephone plants, with government money competing with private enterprise.

And not in money to be provided in a manner that will inevitably result in the socialization of a large part of the Independent segment of the telephone industry.

(The foregoing editorial, although copyrighted, may be reproduced in whole or in part, without charge, provided credit is given this publication and a copy of such reproduction is filed with this publication. This legend need not appear on the reproduction.)

GOLDENDALE, WASH



View of the Goldendale XY equipment: originating bay, intermediate bay and terminating bay. Ever see anything so compact and accessible?

Morris L. Hansen, Stromberg-Carlson representative, proudly poses with the XY System.

STROM

Factory, General Offices: Rochester 3, N.Y. Bran 3, Chicago

TELEPHONES, SWITCHBOARDS • SOUND EQUIPMENT AND ELECTRONIC CARILLONS • INDUS COMM

H*ndorses* XY EQUIPMENT

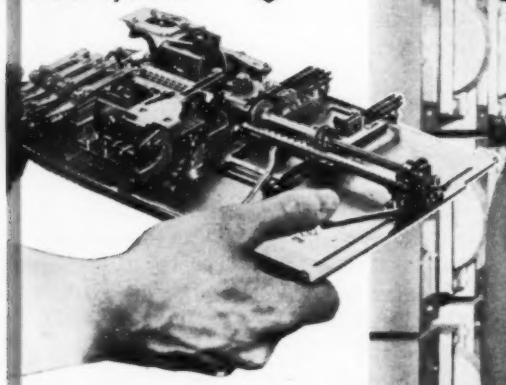
The genial president of the Oregon-Washington Telephone Company, Mr. Wade Dean, a telephone man since 1907.

With the Chamber of Commerce on hand, an Open House Banquet and front-page stories in the local newspaper, the Oregon-Washington Telephone Company on February 26 cut over its Goldendale exchange to Stromberg-Carlson XY automatic switching equipment. In the independent telephone business, one man's opinion is of great interest to others; and we take pride in this frank statement by Oregon-Washington's president, Mr. Wade Dean:

"We are highly pleased with the performance of the new XY System after eight weeks of operation. It has been very trouble-free and our technicians find it most flexible and convenient to service and operate. We are pleased that we have, and are installing, another XY System at our White Salmon, Washington, Exchange."

(From Mr. Dean's letter of April 6)

Compact XY switch, heart of Stromberg-Carlson's XY dial system.



Personalities at the XY cut-over. (L. to r.) J. P. Galligan; Dean L. Willey; Wade Dean; Orla Moody and Earl Dean.

M RG-CARLSON

Bran[illegible]o 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto

DUS[illegible] COMMUNICATION SYSTEMS • RADIOS, RADIO-PHONOGRAPHS, FM AND TELEVISION

NEWS BRIEFS

B. J. Brickey Puurchases Two Missouri Independents

The purchase of the telephone companies at Stotts City and Larussell, Mo., was recently announced by B. J. Brickey, Joplin, Mo. Mr. Brickey stated that the Larussell lines will be trunked to Stotts City and the two consolidated under the name of the Lawrence County Telephone Co.

The new company plans improvements and extensions of the lines to service approximately 350 stations, with expansions to be made later. The Stotts City exchange formerly was owned by L. Wiehe, and the one at Larussell was owned and operated by G. E. Campbell.

Hiland H. Wheeler Elected Vice President of Lincoln T.&T. Co.

At a meeting of its board of directors April 15, Hiland H. Wheeler was elected vice president of The Lincoln Telephone & Telegraph Co., succeeding B. I. Noble. He was also elected a member of the board.

Mr. Wheeler is a Lincoln man, son of Nebraska pioneer parents. He is the grandson of O. P. Mason, Nebraska's first Chief Justice; the son of Hiland H. Wheeler, compiler of statutes and clerk of the Supreme Court, and of Grace Mason Wheeler, one of Lincoln's best known women. He had formal education in the Lincoln schools and the University of Nebraska, Class of 1909. Subsequently he has been engaged in public utility work without interruption. He was employed by the Burlington Railroad in railway construction, by the Milwaukee Electric Railway & Light Co. in various capacities, and joined the Lincoln Telephone organization in 1915 in its plant and engineering department. Until 1923 he was plant engineer, becoming Chief engineer on that date and holding that position continuously since.

Mr. Wheeler has been a frequent contributor in writings and appearances before the state and national telephone associations. Until a temporary health impairment imposed restriction, he was active in the civic life of Lincoln through the Chamber of Commerce and as a Rotarian.

HILAND H. WHEELER, newly-elected vice-president of Lincoln (Neb.) T & T Co.

Thomas C. Woods, company president states that Mr. Wheeler's election bring to the company's general administration a knowledge of the technical phases of the business which is especially important at this time.

Mr. Noble leaves the Lincoln company to become engaged with the American Road Equipment Co., of Omaha, in association with John H. Agee and Howard H. Agee.

I. F. Krehbiel Elected Director of Interstate

C. E. Johnson, President of Interstate Telephone Co., Spokane, Wash., has announced the election of I. F. Krehbiel, to the board of directors of Interstate, at a recent meeting of the stockholders, replacing W. M. Anderson of Spokane who has resigned after many years of service on the board. Press of many personal matters demanding his time and attention caused Mr. Anderson's resignation.

"Mr. Krehbiel became Vice-President and General Manager of Interstate in September of 1948," said Mr. Johnston, "and his present election to the Board of Directors is evidence of the thorough command he has of the various problems of the company and the esteem in which he is held."

Virginia Tel. & Tel. Announces Personnel Changes

L. D. Densmore, Eastern division manager of the Virginia T & T Co., Charlottesville, Va., has announced recent personnel changes in the Eastern division.

W. E. (Gene) Sparger has been made division auditor assuming the post left recently by the death of Charles C. Ward. Mr. Sparger has been the Eastern division commercial manager for several years and prior to that was district manager of the North Carolina properties of Central Telephone Co.

Duane T. Swanson, assistant Eastern Division Manager, will assume the duties of division commercial manager, vacated by Mr. Sparger. Mr. Swanson joined Mr. Densmore's forces in February, 1948, upon his resignation as a Nebraska State Railway Commissioner. He is an attorney and has been assisting in the presentation of rate cases, preparation of franchises, building contracts, etc.

Wilson B. Garnett, commercial supervisor of the South Boston, Va., area under district manager K. E. Schuler, has been promoted to district traffic manager at Charlottesville to fill the post vacated by the resignation of W. B. Crays. Mr. Garnett has been in local charge of the South Boston office since July, 1946 and was responsible for the work done preparatory to dial conversion which will be completed this year.

Ersie L. Hall, formerly district commercial manager at Morehead, Ky., for the Ashland Home Telephone Co. has been appointed to fill the post vacated by Mr. Garnett.

Additional changes in the division

auditor's office, to be announced later, will include the centralization of toll billing work now being done, in part, by the commercial offices at Charlottesville, Farmville and Front Royal, Va., Romney and Charles Town, W. Va., and at Mt. Airy, N. Car. All proposed changes cannot be made until the new central office building at Charlottesville is ready for occupancy in July or August of this year.

As an assistant to the division commercial manager, Mr. Densmore announced the employment of Ben F. Borden, who assumed his new duties on February 21st. Mr. Borden is a son of Jas. P. Borden, district manager at Charlottesville who has had many years experience with the Virginia company and its predecessor companies. He received his LLB degree from the University of Virginia Law School last October, after returning to the University from a three-year hitch as a fighter pilot in the Army Air Corps.

Mr. Densmore also announced that Henry T. Murray has rejoined T. & T. as district plant manager at Charlottesville. Mr. Murray returned after an absence of several years in the Army Signal Corp., Kellogg Switchboard & Supply Co. and most recently with the Community Telephone Co. of Wisconsin.

Also joining the Charlottesville division offices is Blair C. Stone, as assistant division commercial manager of the Eastern Division with headquarters at Charlottesville, Va. Mr. Stone entered the telephone business in 1929 in the commercial office of the Bluefield Telephone Co. He was transferred to Tallahassee, Fla., in 1942, becoming general traffic manager of the Southeastern Telephone Co. Since September 1947, he has served as district commercial manager of the Florida District.

Illinois Commercial Advances Carl J. Lohman

The Illinois Commercial Telephone Co. has announced appointment of Carl J. Lohman as West Central District commercial supervisor with office headquarters at Springfield.

Mr. Lohman had been serving as manager of the company's Pittsfield exchange group comprised of 16 exchanges in Pike and Calhoun Counties. His telephone experience goes back to 1930 when he started work with the Central Electric & Telephone Co., in Iowa. After about 13 years with that company in various capacities, Mr. Lohman accepted the position of plant superintendent with the Pike County Telephone Co. and remained at Pittsfield as manager when that company was acquired by the Illinois Commercial Telephone Co.

In his new job, Mr. Lohman will be responsible for the supervision of the company's commercial activities in 37 exchanges in West Central Illinois.

H. H. Butler Advanced By Illinois Telephone Co.

Announcement has been made by the Illinois Telephone Co., Bloomington, Ill., of the appointment of Herbert H. Butler as general manager of the company, effective April 1, 1949.

The new general manager has for the past two years been serving in Bloomington as assistant general manager. His telephone background includes 12 years with the Chesapeake & Potomac Telephone Co., a considerable part of which was as a local manager at Baltimore, Md. World War II services after enlistment in the National Guard were in both Field Artillery and Signal Corps branches. His principal war time assignment was as Chief, Military Personnel Branch of the Office Chief Signal Officer, with the rank of Colonel. He is a graduate at Washington and Lee University, with subsequent work at Johns Hopkins University.

Gulf States Advances Donald Lamb

The appointment of Donald Lamb as assistant manager of the Gulf State Telephone Co., Athens, Texas, was recently announced by E. M. Kimbrough, district manager.

The transfer of B. C. Trammell from the cable repair department to the plant department in Athens was also announced by the district manager.

SATT Demonstrated Before West Virginia Engineers

C. F. Ffolliot, product design director of Automatic Electric Co., Chicago, demonstrated and explained the company's SATT (Strowger Automatic Toll Ticketing) system on April 21 before a joint meeting of the American Institute of Electrical Engineers (West Virginia section) and the West Virginia Society of Engineers, at Charleston, West Virginia.

Interest in the SATT System has been rapidly developing in recent years,

(Please turn to page 48)

New Leich No. 901 Magneto Telephone

Available from Stock

Now is the time to get acquainted with the new magneto telephone that can be converted to manual c.b. or dial so easily. It is arranged for either wall or desk mounting without any change whatsoever. This is the telephone for which you have been waiting.

It's Priced Right Too—

1600 ohm $29.35 2500 ohm 29.55 (F.O.B. Chicago)

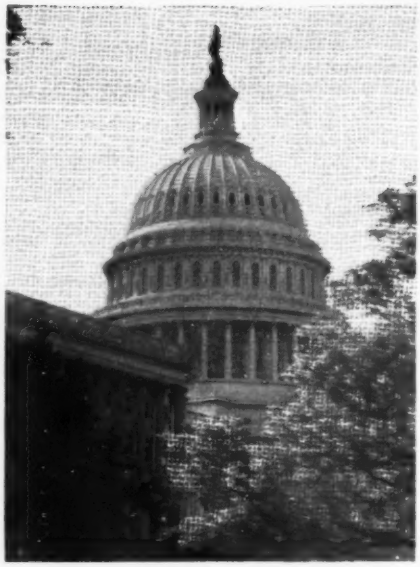
IMMEDIATE DELIVERY

SINCE 1926

TELEPHONE REPAIR & SUPPLY COMPANY

DAN'L H. McNULTY, President and Manager

1760 Lunt Avenue **Chicago 26, Illinois**



Washington Bureau REPORTS

BY ROLAND DAVIES and FRED HENCK

SUPPORTERS of the bill approved by the House Agriculture Committee to authorize rural telephone expansion and development loans by the Rural Electrification Administrator, apparently unhappy about the continued delay in bringing up the measure for floor consideration, were firing salvos from their "heavy artillery" as TELEPHONE ENGINEER & MANAGEMENT went to press in an attempt to jar loose the Rules Committee-locked bill.

Although Rep. W. Robert Poage (D., Tex.), author of the original measure, expressed the hope that the bill would get early consideration, there appeared no disposition on the part of the bill's supporters to file the necessary resolution to discharge the Rules Committee from consideration of the legislation and bring it to the House floor after 21 days.

Heaviest barrages against the telephone industry came from Senator Lister Hill (D., Ala.), sponsor of rural telephone legislation in the last four Congresses, in a statement inserted in the Congressional Record, and REA Administrator Claude Wickard, in a Columbia Broadcasting System Saturday afternoon "news" program. In his appearance, Administrator Wickard for the first time came out in the open to indicate a definite preference for telephone cooperatives over operators of existing telephone systems.

Rep. Poage told TELECOMMUNICATIONS REPORTS that he had originally been told by the House Democratic leadership that the rural telephone bill would not be considered until after House action on the Taft-Hartley revision and wage-hour bills. There were, however, definite reports that the wage-hour measure would not be called up immediately after the final vote on Taft-Hartley. It was certain that the Taft-Hartley fight would leave serious scars, and the administration leaders wanted time to regroup their forces before tackling the controversial minimum wage legislation.

In his broadcast, Administrator Wickard, in comparing the REA's present lending authority for electric power projects and the agency's duties under the rural telephone proposal, noted that "the proposed telephone bill provides for loans to improve service as well as to extend it to those who do not have any service." In the REA power activities, he added, loans cannot be made for power service to people who already have it.

After stating that the government "would not actually be in the telephone business," Mr. Wickard stressed that "we have been financing power lines for almost 14 years but we're not in the power business. We have no intention of going into it, either. So far as telephone financing is concerned, we would expect exactly the same thing to apply. We would not expect our present power coops to go into the telephone business, either—we think separate organizations would be better."

The REA Administrator said that this does not sound "much like socialism or any of the dire warnings which crept into the (House Agriculture subcommittee) hearings." He said that "we think this program can be carried out in a business like fashion, without subsidy and with local private ownership and control. In fact, we think it would have to work out that way or not at all. That's the way our REA power program has worked." He added that in the event of Congressional enactment of the bill, the REA will bring into a rural telephone program "the practices and techniques we have developed and applied to the rural power program."

Senator Hill, in his statement inserted in the Congressional Record, expressed the hope for early hearings on his rural telephone bill by the Senate Agriculture and Forestry Committee. He struck back hard at some of the legislation's opponents, particularly the telephone industry in its contention that the program would cost the taxpayers billions of dollars and the charges that the bill would destroy or "socialize" the telephone industry.

The Alabama Senator embraced the entire telephone industry in his accusations about "lobbying" against the bill, charging that the "cry" of socialism raised in connection with the measure is to cover up and protect the monopolistic domination of the industry by one large company (apparently the Bell System and American Telephone & Telegraph Co.). He said the Bell System already has succeeded in "gobbling up" most of the more lucrative areas of the country. "Year by year," he contended, "more and more of the small Independents and mutuals are being pushed to the wall and absorbed."

Bell & W.E. Co. Deny Sherman Act Violations

FLATLY denying the Sherman Act violation charges pressed against them in the Justice Department Antitrust Division suit, the American Telephone & Telegraph Co. and the Western Electric Co. have outlined in detail the reasons for their conviction that U. S. telephone users will suffer the most if Western Electric is separated from the Bell System. The response to the Justice Department complaint came in a formal answer filed with the U. S. District Court for the New Jersey District, asking that the complaint be dismissed.

There was no indication from the court as to the next procedural step in the case, and there was no hint as to the future timetable to be followed by the court in considering the complaint and response.

"It is necessary for the Bell System to include a manufacturing and supply unit if nationwide telephone service is to continue to be of the highest quality at low cost," the answer pointed out. "The Bell System maintains and uses its own manufacturing and supply unit solely to accomplish that result and it would be contrary to the public interest to disrupt the existing organization and operation of the Bell System."

The answer keynoted that "Since all the operating units of the System have common problems, there are many things that can be done better and more economically on their behalf by a central organization. The American company has undertaken to do these things, either directly or through its subsidiaries. To that end it develops and recommends technical standards and operating methods to enable the operating units of the System to work together effectively; it provides and makes available to the operating units the research and development facilities of of the Bell Telephone Laboratories and the manufacturing and supply facilities of Western Electric; it assists the Bell operating companies in matters of finance and provides services and advice with respect to many phases of their operations; and it acts on behalf of the companies concerned in handling numerous problems affecting the System as a whole. Thus all the units of the System are parts of a single enterprise."

Answering another contention of the Justice Department, the A. T. & T. said that "Acquisitions of Independent telephone companies have been a minor factor in this growth (of the Bell System). The first such acquisitions occurred during the period of intense competition which followed the expiration of the Bell patents and some have taken place in more recent years.

"One effect has been to avoid the waste and public inconvenience involved in having two telephone systems in the same community. Governmental procedures have been developed for supervising the acquisition by one telephone company of the assets or stock of another, and for the past 35 years every significant acquisition by the Bell System has been made with the approval of agencies of the federal government."

The A. T. & T. answer recalled the history of the Justice Department suit in 1932 against the A. T. & T., General Electric Co., Westinghouse Electric & Manufacturing Corp., the Radio Corp. of America, and others, which charged exclusive patent arrangements and a virtually complete monopoly in the U. S. of the sale of equipment produced in accordance with those patents.

The answer noted that the suit was dismissed and a consent decree entered, after the special assistant to the Attorney General in charge of the case informed the court that substitute agreements had been entered into which were "manifestly in the public interest and contained none of the features which were deemed objectionable in the earlier agreements; and that by reason of said substitute agreements the situation as to these defendants of which the government complained had been corrected."

Taking up the various contentions of the Justice Departments that advances in the art of telephony—launched and developed by Independent manufacturers and companies were stifled in the Bell System because of the fear that existing equipment would be made obsolete, the answer took up the developments one by one, generally contending that they were put into use in the Bell System as rapidly as practicable.

The general statement was that "The Bell System has made outstanding advances in the art of telephony, and has introduced new developments, with proper regard to improvement of the service and economy of operation and at the same time to the avoidance of increased costs to the public from unjustified capital investment."

Labor

THE almost certain ratification by the membership of the Communications Workers of America affiliation with the CIO was expected to be announced momentarily as this issue of TELEPHONE ENGINEER & MANAGEMENT went to press, with CWA sources—who already had received the votes of seven of the divisions—predicting flatly that affiliation would be approved by a margin of two or three to one.

CWA headquarters will announce only the overall result of the vote, but individual divisions will be at liberty to disclose the results in their memberships balloting.

With approval by the House and Senate of a provision continuing the non-communist affidavit requirement of the Taft-Hartley Act in the new labor-management relations legislation considered almost certain, a good example of what happens to workers who entrust their collective bargaining to a union apparently dominated by communist followers has cropped up in the communications industry, at Western Union.

About 7000 Western Union employees—those in New York City and in the Cable Division—are represented by the American Communications Association (CIO), which is generally regarded as headed by communist followers. At least, its officials are among those who have never filed non-communist affidavits.

Recently, with the expiration of their contract with Western Union, the ACA leaders quietly signed up for one year at no wage increase whatsoever for the landlines workers, and a six-cent hourly boost for the cable workers, who did not get anything last year because of the abortive strike against several international telegraph companies.

Of course, with Western Union losing money steadily, the ACA had little chance to get a pay boost. But press reports are that they were amicable to the point of meekness at the bargaining sessions, and did not try very hard to obtain concessions for their members. The reason is obvious. Under the present law, the company could seek a collective bargaining election—and ACA would have no chance to maintain its position, since it could not go on the NLRB ballot.—THE END.

Coming Conventions

Kansas Telephone Association, Jayhawk Hotel, Topeka, May 17-18.

Wisconsin State Telephone Association, Park Hotel, Madison, May 18-19.

New York State Telephone Association, Jamestown Hotel, Jamestown, May 25-26.

North Dakota Telephone Association, Gardner Hotel, Fargo, June 9-10.

Oregon Independent Telephone Association and *Washington Independent Telephone Association*, Davenport Hotel, Spokane, Wash., June 17-18.

California Independent Telephone Association, Biltmore Hotel, Los Angeles, June 23-24.

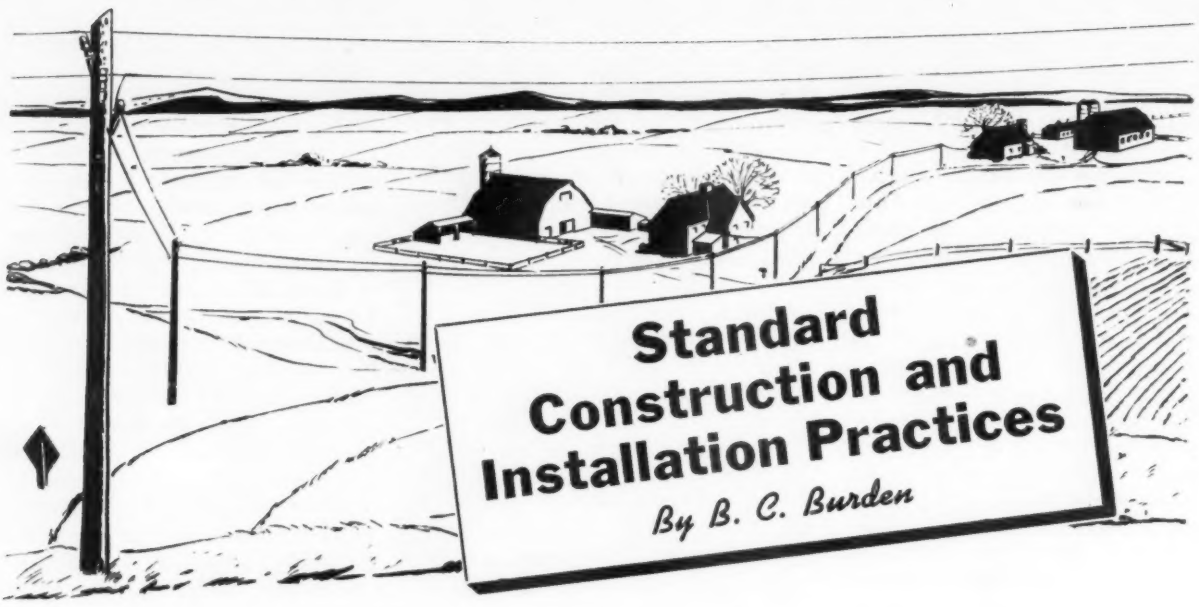
Rocky Mountain Telephone Association, Newhouse Hotel, Salt Lake City, Utah, Sept. 22-23.

Michigan Independent Telephone Association, Olds Hotel, Lansing, Sept. 22-23.

United States Independent Telephone Association, Stevens Hotel, Chicago, October 10, 11, 12.

South Dakota Telephone Association, Cataract Hotel, Sioux Falls, Nov. 9-10.

Missouri Telephone Association, Governor Hotel, Jefferson City, Mo., November 14-15.



Standard Construction and Installation Practices

By B. C. Burden

In Part II of a two-section article covering standard telephone construction and installation practices, Mr. Burden continues a valuable discussion of uniform methods for performing specific new construction or maintenance tasks.

Fastening Guys To Poles and Anchors

THE WRAP method and the eyebolt method are used to fasten guy strand to the pole. The wrap method (*Figure* 13) is suitable for all sizes of guy strand while the eyebolt method is particularly satisfactory for guy strand sizes of 6,000 lb. and over. The latter method is illustrated in *Figure* 14. (*See page* 29 *for Figures* 13 *and* 14)

In side or head guying, the guy strand should be attached to the pole as nearly in the center of the wire load as possible. For one-crossarm leads, the strand is attached a few inches below the crossarm and for two-wire bracket leads, just below the lowest bracket.

In attaching the guy strand to the anchor, a Coffing hoist is well suited for pulling up the strand as shown in *Figure* 15. The hoist is operated until the top of the pole is pulled out of line by approximately the diameter of the pole top. More tension is applied to properly set the pole and the anchor and then slacked off to the desired tension. The clamp is then fastened in position on the strand and the hoist is afterwards removed. The excess length of tail is cut off and the remaining length served as shown in *Figure* 16. (*See page* 29 *for Figures* 15 *and* 16.)

B. C. BURDEN, Telephone Engineer, Lincoln, Nebraska.

Placing Open Wire

FOUR GENERAL steps are involved in placing open wire, namely, (1) reeling out the wires, (2) placing the wires on crossarms or brackets, (3) pulling slack in the wires, and (4) tying in the wires.

The line wires, usually 109 steel, or 104 copper or Copperweld, are either pulled in over the crossarms or reeled out alongside the pole lead and then raised to the arm or brackets. The latter method is the most commonly used. In this case, the wire coils are placed on reels mounted on a trailer and the trailer is then hauled along the road to lay the wires long the side of the road as shown in *Figure* 17.

In certain instances, however, it may be necessary, on account of road obstructions such as trees or shrubbery, to reel the wire out on the field side of the pole lead. This procedure is illustrated in *Figure* 18.

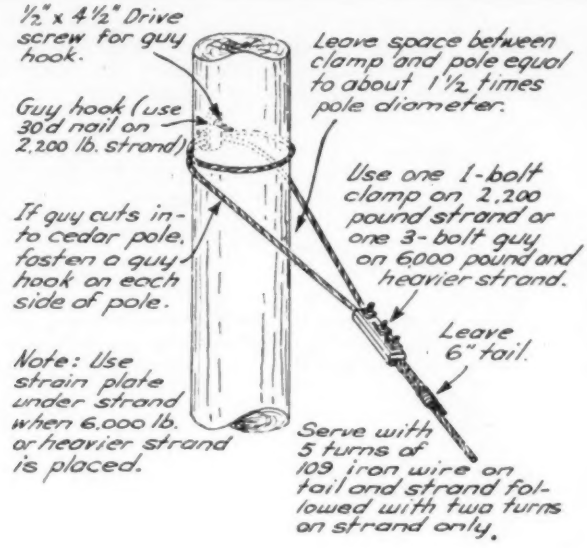
As a rule, ½-mile sections are reeled out before the wires are raised to the poles, but if the terrain is too rough, shorter sections may be reeled out to reduce the work effort.

It is a good idea to throw all required transpositions into the wires at the reels and later push the transpositions ahead as the wires are tied to the insulators, until the proper points are reached for making the transpositions. This procedure avoids the necessity for cutting the wires to make the transpositions.

The method illustrated in *Figure* 19 is commonly employed for dead ending the wires between pulling section. The purpose is to reduce the strain on the end pole that would result if the wires were attached at the top of the pole.

The wires are raised to the pole with a wire-raising tool or by means of a handline. If more than four wires are placed, the wires should be bunched in two or three groups to enable the wires to be pulled up more easily later on.

At the end of each pulling section, the wires are pulled up by means of slack blocks or wire equalizers as shown in *Figure* 20. The truck can


½" x 4½" Drive screw for guy hook.
Guy hook (use 30d nail on 2,200 lb. strand)
If guy cuts into cedar pole, fasten a guy hook on each side of pole.
Note: Use strain plate under strand when 6,000 lb. or heavier strand is placed.
Leave space between clamp and pole equal to about 1½ times pole diameter.
Use one 1-bolt clamp on 2,200 pound strand or one 3-bolt guy on 6000 pound and heavier strand.
Leave 6" tail.
Serve with 5 turns of 109 iron wire on tail and strand followed with two turns on strand only.

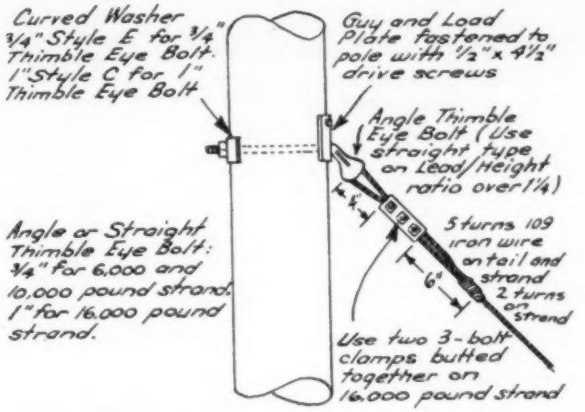
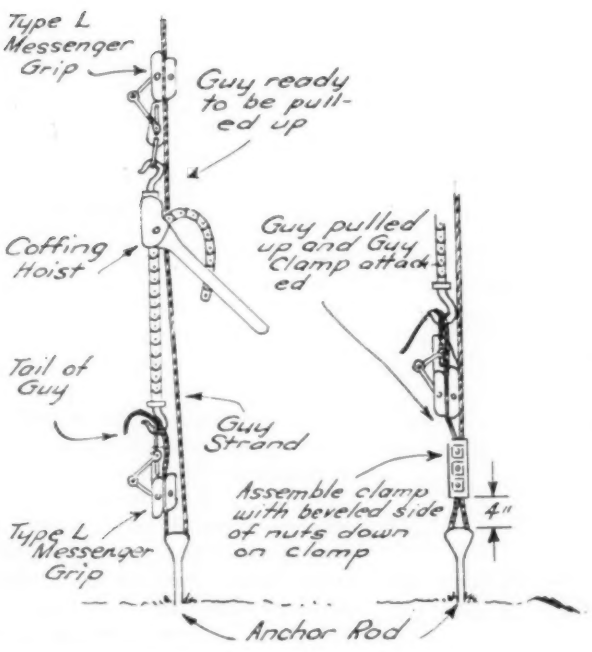

Curred Washer ¾" Style E for ¾" Thimble Eye Bolt. 1" Style C for 1" Thimble Eye Bolt
Guy and Lead Plate fastened to pole with ½" x 4½" drive screws
Angle Thimble Eye Bolt (Use straight type on Lead/Height ratio over 1¼)
Angle or Straight Thimble Eye Bolt: ¾" for 6,000 and 10,000 pound strand. 1" for 16,000 pound strand.
5 turns 109 iron wire on tail and strand 2 turns on strand
6"
Use two 3-bolt clamps butted together on 16,000 pound strand

Fig. 14 (above)—Eyebolt Method of Attaching Guy to Pole.

Fig. 13 (left)—Wrap Method of Attaching Guy to Pole.


Type L Messenger Grip
Guy ready to be pulled up
Coffing Hoist
Guy pulled up and Guy Clamp attached
Tail of Guy
Guy Strand
Assemble clamp with beveled side of nuts down on clamp
4"
Type L Messenger Grip
Anchor Rod

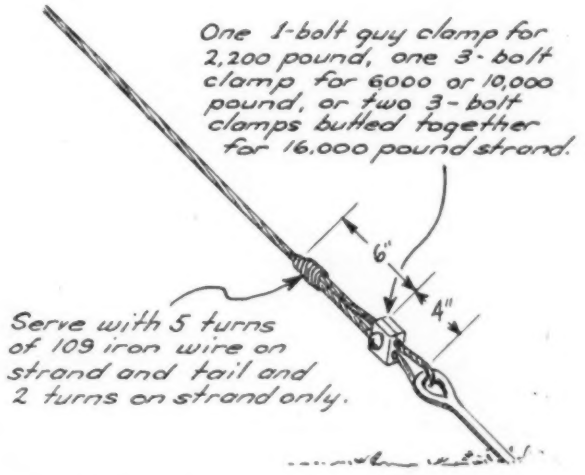

One 1-bolt guy clamp for 2,200 pound, one 3-bolt clamp for 6000 or 10,000 pound, or two 3-bolt clamps butted together for 16,000 pound strand.
6"
4"
Serve with 5 turns of 109 iron wire on strand and tail and 2 turns on strand only.

Fig. 16 (above)—Serving Tail on Guy Strand.

Fig. 15 (left)—Method of Pulling up Guy Strand.

be used for applying the necessary tension if wire equalizers are used. An initial tension greater than normal should be first applied and the wires then slackened off to the correct tension.

Methods of Measuring Wire Sag

THE WIRES are adjusted to the proper tension by measuring the wire sag according to a table of standard wire sags for kind of wire, length of span, and air temperature as indicated in *Figure* 21. It is convenient and more accurate to use a dynamometer for measuring the tension directly, particularly if a number of wires are being placed at one time. The dynamometer should be attached between the wire equalizer and the truck or pulling hoist. The total tension required is the standard tension per wire in pounds multiplied by the number of wires.

The proper tension is important to prevent breakage of the wires in cold weather and under ice loads, if the stringing tension is too great. On the other hand, excessive slack can result during warm weather if the wires are not pulled up tight enough. The wires would then tend to cross with other lines or sort circuit together.

Attaching Wires To Insulators

AFTER THE wires are properly sagged, the next procedure is to tie in the wires. One standard method of attaching the wires to insulators is illustrated in *Figure* 22.

In the tying-in process, the wires should be located on the inside of the insulators (side next to the pole) on bracket lines and on the inside of all insulators on a crossarm, except the pole pin insulators which should have the wires on the outside in order to increase the climbing space between these wires. At corners in the line, the wires should be placed so as to pull against the insulators, not away from them.

For splicing wires at joints and branch-off points, it is recommended that compression or rolled type sleeves be used in accordance with the manufacturer's instruction sheets. Tap type sleeves are convenient for branch-off points, though many com-

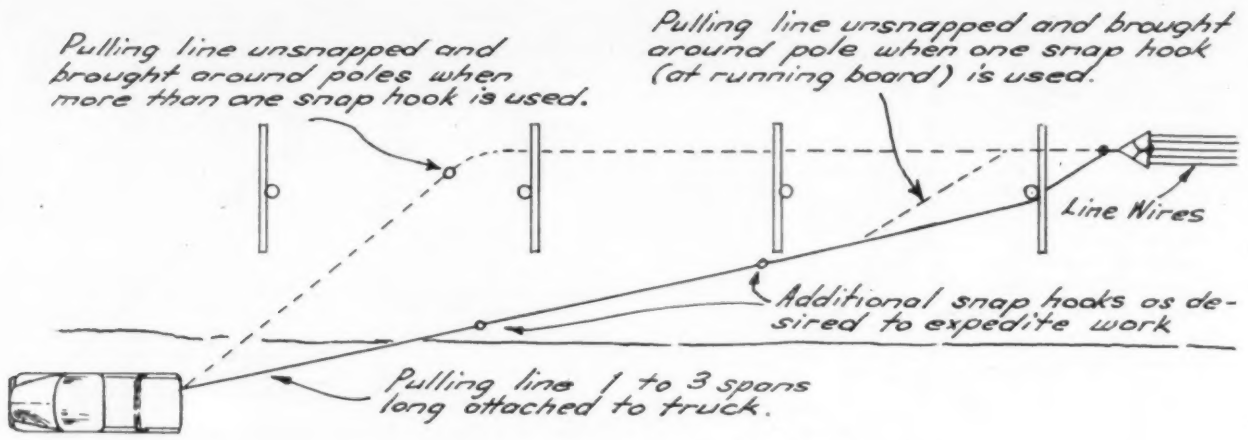

Pulling line unsnapped and brought around poles when more than one snap hook is used.
Pulling line unsnapped and brought around pole when one snap hook (at running board) is used.
Line Wires
Additional snap hooks as desired to expedite work
Pulling line 1 to 3 spans long attached to truck.

Fig. 17—Reeling Out Wire on Road Side of Lead.

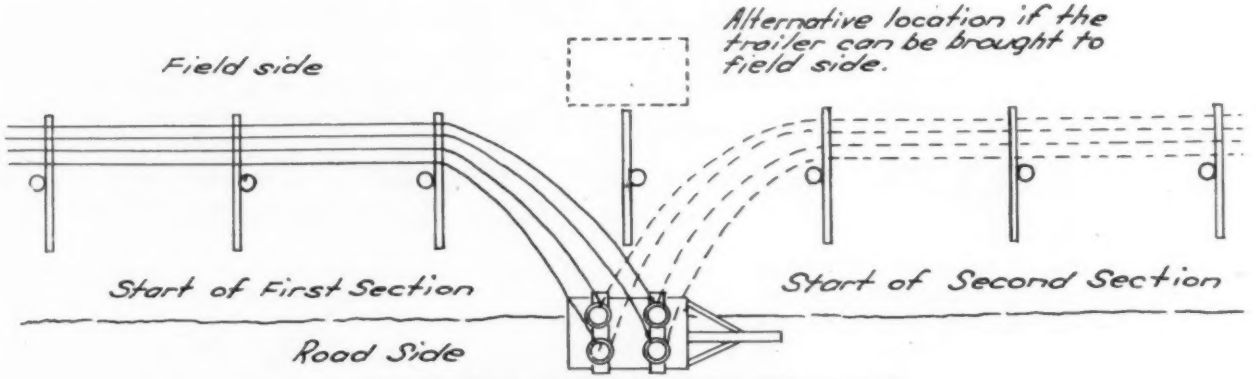

Alternative location if the trailer can be brought to field side.
Field side
Start of First Section
Start of Second Section
Road Side

Fig. 18—Reeling Out Wire on Field Side of Lead.

panies still prefer test connectors for this purpose.

For dead ending lines, special offset compression sleeves are utilized as shown in *Figure* 23. (*See page* 52.)

DROP WIRE must be properly installed to assure maximum service life. Correct installation methods consist of properly routing drop wires to avoid, wherever possible, abrasion due to rubbing on trees and other obstructions, protection of drops from contact with trees, maintaining the proper clearances from ground and from power wires, and installing the drop spans with adequate sags.

Textile braid rubber covered drop wires have long been used. Polyethylene covered and neoprene jacketed drop wires are rapidly replacing textile braid because of longer life and ease of handling. The conductors are No. 17 bronze or Copperweld, or No. 18 bronze or Copperweld.

Drop wire splices are easily made by means of compression sleeves as directed in instructions furnished by the manufacturer. Each joint is afterwards wrapped with two layers of rubber tape and the two splices together are taped with two layers of friction tape.

For supporting drop wires on poles and guard arms, drop wire clamps are used to attach the spans to drive hooks in the pole or to guard arm hooks on the guard arm. This arrangement is pictured in *Figure* 24. For bracket leads, the method of dead ending a drop span on a pole is illustrated in *Figure* 25, while one method suitable for crossarm leads is shown in *Figure* 26. (*See page* 53.)

A guard arm is ordinarily not required, even for joint-pole use, but

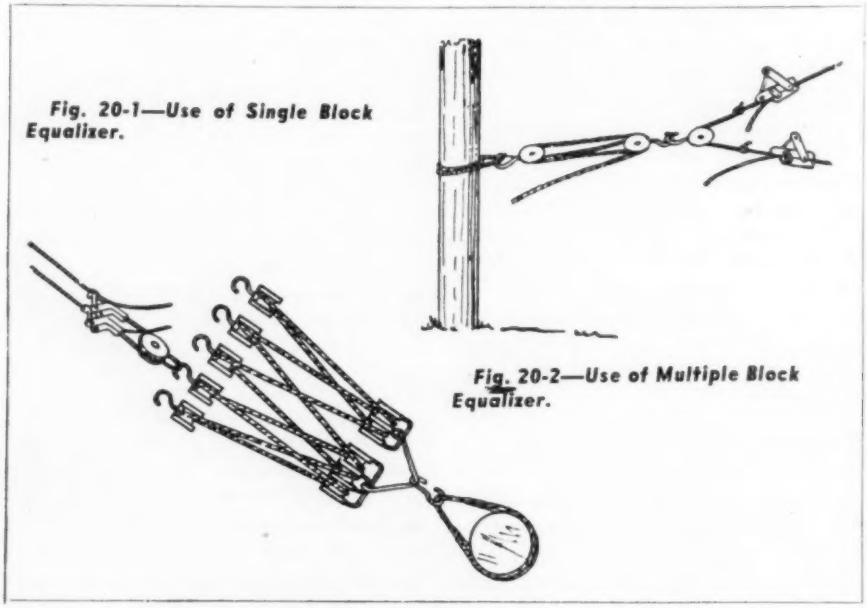


Fig. 20-1—Use of Single Block Equalizer.

Fig. 20-2—Use of Multiple Block Equalizer.

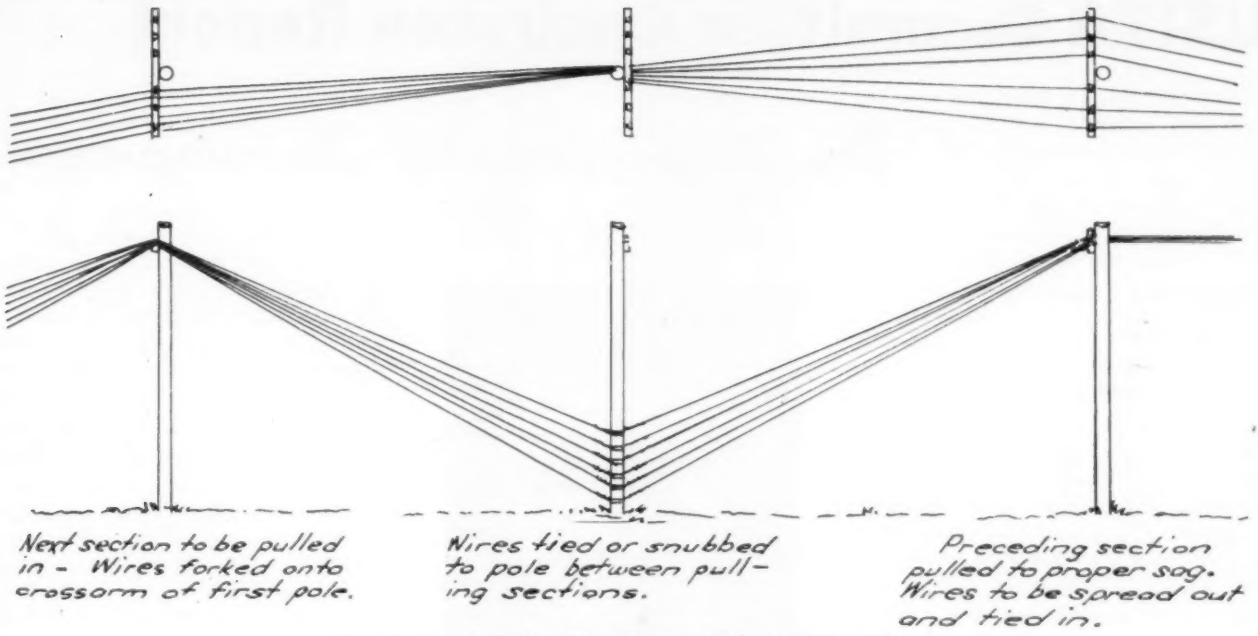

Next section to be pulled in - Wires forked onto crossarm of first pole.
Wires tied or snubbed to pole between pulling sections.
Preceding section pulled to proper sag. Wires to be spread out and tied in.

Fig. 19—Dead Ending Wire During Pulling in Operation.

it provides a convenient means of distributing the drop wires and furnishing adequate climbing space for the power lineman. If preferred, the drop spans may be attached directly to the pole; provided that about 36" x 36" climbing space can be furnished by properly locating the drive hooks on the pole. On non-joint poles, the attachments can be conveniently placed at the top of the pole to obtain direct spans to the subscribers' residences if the drop wires do not touch the cable.

The drop wires are run to the cable terminal and enter the terminal from the bottom. Drive rings are located to enable the wire runs to clear the terminal cover. The wires should enter either side wire channel for direct connection to the proper posts without having to run across the face plate.

Protecting Drop Wires From Abrasion

PROTECTION of drop wires from abrasion is best obtained by proper routing of the drop wires from the cable terminal pole. The wires are routed to avoid trees as much as possible or to pass under large tree branches. A span clamp such as that illustrated in *Figure* 27 will enable the routing to be made in many cases. If routing is not practicable, the drop wire should be protected by means of spiral plastic drop wire guards. A sufficient number of these guards should be used to extend the protection at least two feet on each side of the tree or shrub through which the wire passes to allow for subsequent growth.

Proper Sags For Stringing Drop Wire

IN STRINGING drop wires, due regard should be given to the proper sags for the span length of the wire. To avoid excessive strain on the drop wire at attachments, the sag should not be less than 6 inches for a 50 ft. span; 12 inches for 75 ft. span; 24 inches for 100 ft. span; 48 inches for 125 ft. span; and 72 inches for 150 ft. span in the heavy loading district. Spans over 150 feet are not desirable, but lengths of up to 200 feet maximum span may be strung with as much sag as permitted by ground clearance requirements.

Drop wire should be strung to provide not less than the minimum clearances in the following situations, viz., 27 feet over railroads; 18 feet

(*Please turn to page 52*)

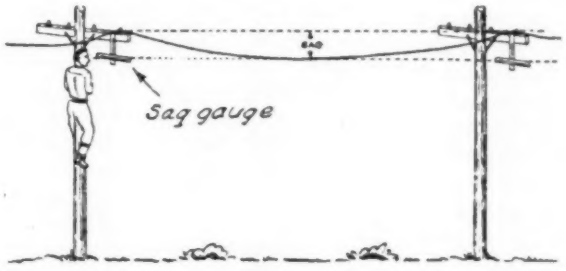


Fig. 21-1—Measurement of Sag on Straight Section of Line.

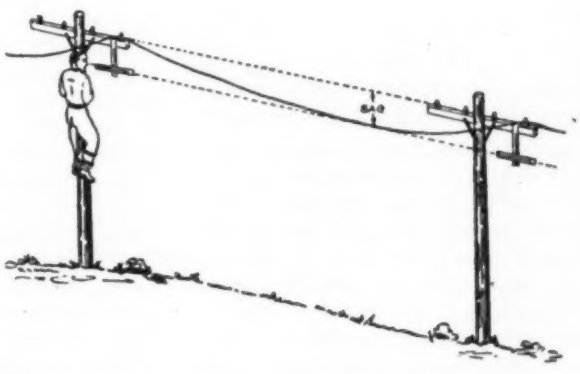


Fig. 21-2—Measurement of Sag on Hills.

USITA Committee Chairmen Report

On Departmental Developments

Accounting Committee

By H. C. WHITE,
Chairman, USITA Accounting Committee, Jamestown, N. Y.

THE MOST important activity of the Accounting Committee since the October convention was the accounting conference called by the Federal Communications Commission in New York on November 30, 1948. This was a joint meeting of the Accounting Committee of the F.C.C., the Accounting Committee of the National Association of Railroad and Utility Commissioners, a Committee representing the American Telephone and Telegraph Company and the Accounting Committee of the U.S.I.T.A. The morning session was devoted to changes in the proposed "Regulations on the Preservation and Destruction of Records". Several changes were proposed by the A. T. & T. and the U.S.I.T.A. representatives.

These changes consisted of variations as to the length of time required for the preservation of certain records. Most of these recommendations seemed to be acceptable to the Chairman of the meeting. Several meetings of this joint committee have been held in the past year to work out these proposed rules and regulations. The draft seems to be in proper form at this time for definite action by the F.C.C. Mimeograph copies of these revised rules and regulations have been submitted to the members of the Accounting Committee during the past year and the Committee has advised the Directors of your Association that these regulations are acceptable. The new rules seem to be a great improvement over the present ones with respect to the length of time and the procedure necessary for the destruction of certain records.

In the afternoon the Chairman of the F.C.C. Committee asked for suggestions from the operating companies on any changes which they thought should be made in the Annual Report to the F.C.C. "Form M". As the forms for the 1948 report were already printed no change could be made until later years. Only minor "clean-up" changes in

H. C. WHITE, Jamestown, N. Y.

Form M are contemplated for the December 31, 1949 report. The F.C.C. Accounting Committee is recommending a major revision of Form M for the 1950 report. Some of the revisions discussed at this meeting included suggestions that this report be made slightly smaller (such as 8½" by 11"), that some of the information requested in rarely used schedules be reported in schedule No. 471, that certain $5,000.00 minimum figures in the schedules be increased to $10,000.00, that certain instructions be clarified and certain information be eliminated in some schedules, that only one employee count be made each year instead of two as requested in schedule No. 461 and that Form M be issued in loose leaf form so that the schedules can be typed or possibly reproduced on Multilith Systemats.

In addition to our work in studying these problems, our committee has also been requested by the Washington office to furnish information and advice to several small independent telephone companies who have accounting problems. Simplified systems of accounting for Class C and D Companies have been requested by a number of companies and have been furnished by us. The Accounting Committee is pleased to be of service to any of the member companies whenever it is possible to do so. Although no accounting session is scheduled during this Spring Conference, the members of the Accounting Committee will be glad to be of assistance to anyone who may have accounting problems and will express a desire to discuss these problems with us.

The Accounting Committee expects to have an interesting program at the October convention and invites suggestions with respect to the topics you wish discussed at that meeting. It is our aim to make these sessions interesting and instructive.—THE END.

Plant Committee

By G. W. MILLER,
Chairman, USITA Plant Committee
Rochester, N. Y.

THIS SEMI-ANNUAL report will mention a few matters which the committee hopes will be of interest. The members of the committee were asked for their thoughts and ideas for this report, so what I have to say is a consolidation of the replies. It was not surprising to me that several sent in the same suggestions, as for instance, operator toll dialing, carrier applications, and the 109 steel wire, all of which will be discussed.

The Executive Committee on December 10, 1948, transferred to the Plant Committee the duties and responsibilities formerly resting with the Dial Interexchange Committee. These included the subject of intertoll dialing. Many Independent companies will be installing equipment to operate with the nation-wide system. The Association is in contact with the American Telephone and Telegraph Company in the matter of circuits and equipment which will fit in with the system. Articles have appeared in various magazines relative to the extension and operation of operator dialing, which it is assumed you have read; also, more will be said about it on this program. At this time, the committee has nothing further on the subject; however, if there are any questions, letters should be addressed to the committee through our Washington headquarters.

There are some who feel that there

should be increased compensation for providing equipment features for operator toll dialing. I don't believe there are any toll agreements which specifically mention this point. We all agree that such equipment costs money, either at the time of initial installation of the office or an addition to an existing one. It may be advisable, after some experience has been gained on equipment and other costs, for a study to be made by our Association or jointly with the Bell System. The advantages of operator toll dialing benefit, for a large part, the Bell System.

Your attention is invited to the new steel wire, 109 gauge, generally used for rural lines. This wire has a resistance range from 69 to 91 ohms per loop mile. It is available in several grades, 109-S, 109-HS and 109-E. All grades have the same weight, 170 pounds per wire mile. The big difference in these grades comes in the breaking strengths, approximately 800, 1200 and 1800 pounds, respectively. The corresponding average span lengths for the use of this wire are approximately 250, 350 and 450 to 600 feet. The longer spans require greater wire spread of conductors, increased sags, taller poles and imposes greater stresses on poles depending on number of conductors. The old 109 galvanized iron wire, known as No. 12 BWG, weighs 170 pounds per wire mile, a loop resistance of 67 ohms and a breaking strength of 476 pounds. A comparison of this wire, with the new steel wire of the same gauge, shows the electrical resistance has increased slightly, whereas the tensile strength has increased from two to almost four times. The new wire, like the old, has its elastic limit and when stretched beyond that limit by an ice load does not return to its unstressed length. At the same time, improved galvanizing processes have considerably increased the service life of the new wire over that experienced with the old. This naturally brings up the question of long span construction, which I will not discuss, as it is a subject in itself.

We would like to recommend to those companies who are converting to dial and with the control office work to be performed by a connecting company, that they read the report of the former dial inter-exchange committee. This report was submitted to the 1947 annual convention under the title of "Report of the Dial Interexchange Committee" and published in "Telephony", issue of October 25, 1947, and in the October issue of "Telephone Engineer". It refers

G. W. MILLER, Rochester, N. Y.

to such control office services as information, intercepting, assistance, emergency calls and others with certain costs. We believe you will find the report very complete and helpful. It was requested, at the time, that the Association's headquarters be informed of the experience gained with this contract, regardless of the character of the experience, as only in that way can the need for changes be determined or its merits judged. We hope to receive some comments.

I know all companies are concerned with the rural line problem, especially line extensions and line loadings. Naturally, from the public relations point of view, line extensions should also include reducing the number of parties on a line. Many companies are now doing just that, with the ultimate object to reduce parties to an average of seven on a line. However, economics enters the question and is most important. Experience has proved that subscribers are generally willing to pay more for better telephone service.

At last year's Plant Conference, We had a paper on carrier and I will not go into detail on this subject; but this committee does want to strongly recommend the investigation of carrier, if, of course, that has not already been done. The popularity of carrier is growing, it not only being less expensive than stringing circuits, but can be easily installed. It can be used on toll lines, rural lines and non-loaded trunk pairs. Signals and dial pulses are transmitted over the carrier circuits. Most companies manufacturing carrier equipment today have it on the shelf, and, therefore, available for immediate delivery.

It was also suggested that I discuss joint use of poles with the R-E-A lines. In Member Letter 273, dated June 25, 1947, Clyde Bailey, Executive vice president, mentioned that the R-E-A on June 18th of that year, made public proposed standard contracts for use between any R-E-A borrower and a local telephone company for joint use of poles or wire. These contracts resulted from joint studies conducted by representatives of the R-E-A and telephone companies. One contract covers the joint use of the same wires for both power and telephone, used in the case of power line carrier equipment. The other contract covers joint use of poles on which separate wires are attached for power and for telephone. Mr. Bailey further states that copies of these contracts will be furnished on request.—THE END.

Traffic Committee

By C. C. DONLEY,
Chairman, USITA Traffic Committee

OBSERVATIONS show that of the subscribers encountering busies (sub. lines or all paths) 90 per cent dial again. Many do so within 45 seconds. See article by Mr. Clos in the July, 1948 issue of The Bell System Technical Journal. Of the 1107 observations there reported, 817 resulted in a second attempt within 10 minutes and 290 were classified as abandoned. Of the 817 second attempts, 327 cases were able to complete their calls—but 465 again encountered busies.

The 90 per cent figure holds for these 465 second attempts, i.e. 10 per cent of the calls will be abandoned and 90 per cent will be tried again. In a simulated traffic study the data indicate that when, over a given period, 1000 calls, with 150 second average holding time, are submitted to 10 trunks only 12 of these encounter a busy trunk condition and of these 11 make second attempts. When this same traffic is submitted to five trunks over a like period, 720 encounter busies and of these 658 redialed resulting in a total of calls offered plus all subsequent attempts of 1,658. If offered to 7 trunks, 155 overflows with 147 second attempts will occur.

The pyramiding of calls due to all paths busy can cause very serious reaction on the entire exchange service. This is a factor to be considered when contemplating trunking relief.

Three large machine switching centers, Chicago, New York and Philadelphia are in operation and

(Please turn to page 58)

National and State Association NEWS

Iowa Independents Reelect Clyde McFarlin President

MEETING at the Hotel Fort Des Moines, Des Moines, Iowa on April 5-6, members of the Iowa Independent Telephone Association reelected Clyde McFarlin, Montezuma, as president. Other officers reelected are: Earle G. Bellamy, Knoxville, first vice president; C. C. Pearce, Riceville, second vice president, and William F. Miller, Des Moines, secretary-treasurer.

Directors elected are: H. J. Hopkins, general manager, Farmers Mutual Telephone Co., Jesup; E. L. Hons, manager, Paullina Telephone Co., Paullina; E. B. Zerwas, secretary and manager, Manning Telephone Co., Manning; A. L. Kelley, manager, Farmers Mutual Telephone Co., Clarinda; F. B. Gordon, general manager, Fort Dodge Telephone Co., Fort Dodge, and Ross Vernon, manager, Mutual Telephone Co., Sioux Center, Iowa. Directors reelected are: Dong Mong, Newton; J. P. Walters, Toledo; W. E. Naylor, Kansas City, Kans.; W. H. Fowler, Pella, and C. A. Farrington, Centerville.

Speakers at the two-day meeting included: Mr. McFarlin, Mr. Miller, Russell J. Hopley, president of the Northwestern Bell Telephone Co., Omaha, Neb.; Mr. Pearce; Herman Lubben, vice president of the Emeline-Iron Hill Telephone Co., Inc.; Foryst L. Wells, secretary-treasurer of the Emeline-Iron Hill company; C. A. Williams, certified public accountant, Sioux City; J. C. Crowley, secretary of the Minnesota Telephone Association, St. Paul; E. R. McKean, insurance director and safety advisor, Western Light & Telephone Co., Inc., Kansas City, Kans.; Frank Miles, general public relations counselor, Des Moines and Harry C. McCluskey, executive vice president of the Kellogg Switchboard & Supply Co., Chicago.

Mrs. Mayme Workman, traffic editor of Telephony and executive secretary of the Independent Telephone Pioneer Association, Springfield, Ill., presided at the Operator's Conference on Tuesday April 5. Speakers appearing at the conference were: Mrs. Workman; Mrs. Louetta Stoneburner, chief operator, Creston (Iowa) Mutual Telephone Co.; Miss Hester Ballard, district traffic instructor, Northwestern Bell Telephone Co., Des Moines; O. W. Selindh, traffic results supervisor, Northwestern Bell Telephone Co., Des Moines.

WM. F. MILLER, reelected sec.-treas. of Iowa Association.

Panel members at the operator's question hour were: Miss Margaret Evans, Iowa Area traffic instructor, Northwestern Bell Telephone Co., Des Moines; Mrs. Lemah Howard, chief operator, Farmers Mutual Telephone Co., Clarinda, and Miss Leah Slattery Iowa Area Traffic Instructor, Northwestern Bell Telephone Co., Des Moines.

At the organization meeting of the Tom Griffith Chapter of the Independent Telephone Pioneer Association on April 5, this newest pioneer group elected James Searl, Newton, president. Other officers elected are Jack Shostrum, Dayton, vice president, and Mrs. Louetta Stoneburner, Creston, secretary-treasurer. Directors elected are: Clarence Durschmidt, Fort Dodge; Norman Spillett, Brooklyn; Carleton Haven, Rockwell City; Clyde Shear, Waterloo and Jim Trovillion, Indianola.

At the opening session on April 5, President McFarlin stated that during the past two years, two small companies have been organized in Iowa. These companies built complete new plants with an investment of over $200 per station and a fixed rural rate of $3.00 per month. "I think," he said, "this is graphic evidence that people can be educated to understand that good telephone service costs money, both from the standpoint of capital investment and from the standpoint of service charges . . ."

Mr. McFarlin stated that the Independent telephone industry has been suffering from "timidity" in asking and securing adequate rates and in educating subscribers concerning the problems involved in serving them. "Some state commission," he said, "are now criticizing companies for their long delay in asking for the adequate rates required to enable a company to furnish good service . . . It may be that some of you have not secured adequate rates . . . I would suggest that you immediately put an adequate rate into effect. It may be later than all of us think . . ."

Secretary Miller in his report complimented officials of the Emeline-Iron Hill Telephone Co., Inc., on their recent development of facilities to serve subscribers in Jackson County, Iowa. Mr. Miller stated that it was "a remarkable job . . . the folks at Emeline and Iron Hill have done as a corporation and within the structure of our good old American free enterprise system . . ."

As part of the Tuesday afternoon session the new exchange of the Emeline-Iron Hill company, handled its first long distance call by placing a call to the Iowa convention. Foryst Wells, secretary and treasurer of the new company answered the telephone at the speaker's table and talked to Logan Marr, a young Jackson County, Iowa, farmer who is going to be the company's maintenance man. Following a conversation between Wells and neigh-

bors and relatives in the home area, Herman Lubben, vice president of the company, and Mr. Wells described the enterprise to the conventioners.

Mr. Lubben stated that several disastrous fires in the area had pointed up the need for some sort of communication. The only telephone in the area was in the Wells general store at Emeline. Service was erratic because the installation was on the end of a long rural line into Monmouth.

At the request of farmers in the Emeline-Iron Hill area, the Iowa association sent representatives to study the situation and the present installation was outlined. Mr. Wells, Mr. Lubben and Mr. Straub undertook the sale of $30,000 worth of stock to purchase equipment and build the lines. Mr. Lubben explained that farmers who were "short on cash" worked out all or part of their stock contribution. Construction started December 6, 1948 and since then 49 miles of pole line have been set up. The 117 subscribers, mostly rural, purchased their own equipment, dug their own pole holes and raised the lines into place with the hoists on their tractors.

The completion of the Emeline-Iron Hill installation brought into being a new and modern Independent telephone company that was described editorially in the February issue of FORTNIGHTLY TELEPHONE ENGINEER as being "an outstanding example of free enterprise at work." It was the consensus of opinion among Iowa conventioners who listened in on the company's first toll call and to remarks of Mr. Lubben and Mr. Wells that the word "magnificent" truly describes the cooperative work of the Emeline-Iron Hill people.

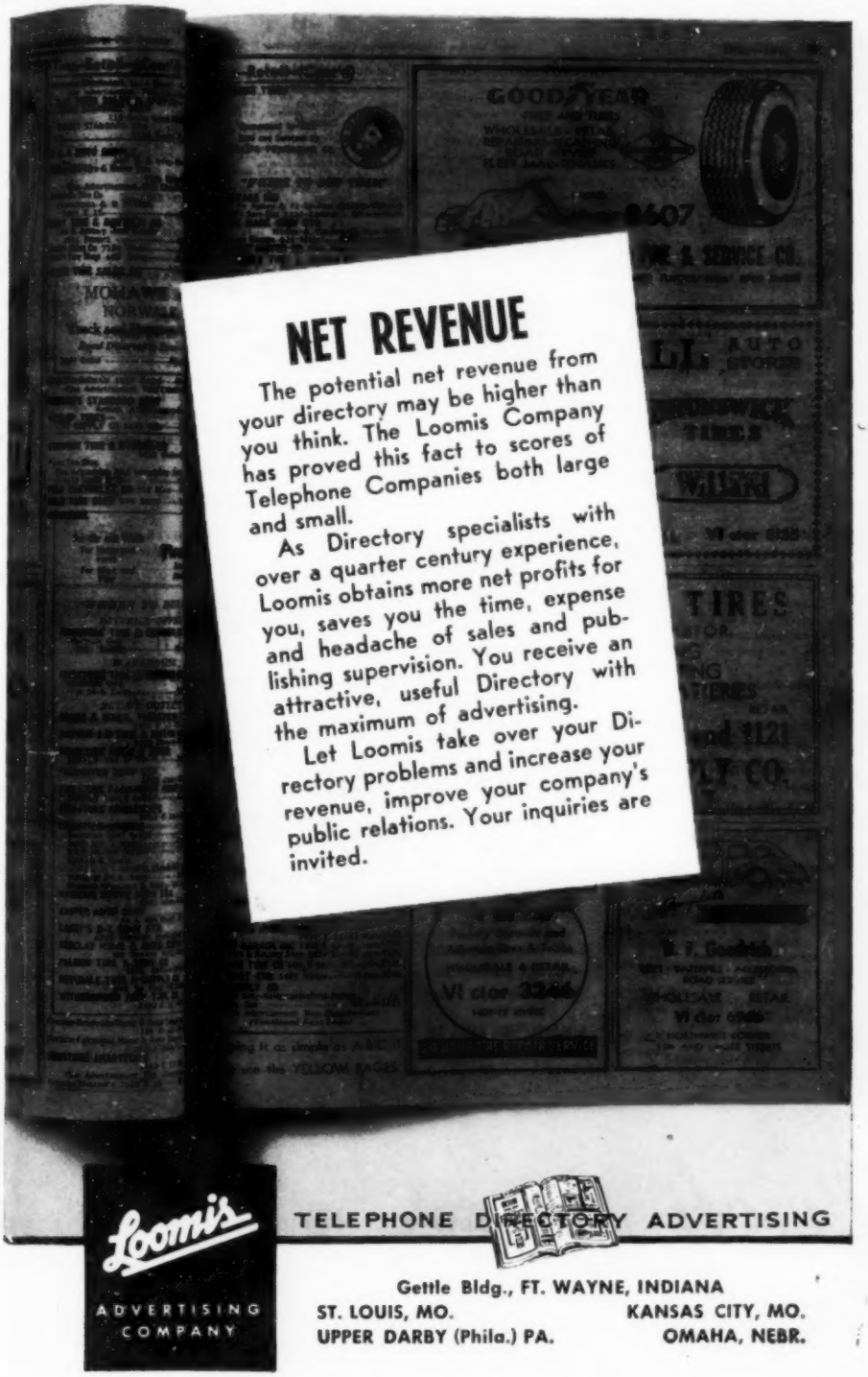
During his discussion of "General Accounting For Small Telephone Companies," Mr. Williams stated that "the prime requirement for a loan or credit is the ability to pay . . . and for additional permanent capital is—return on the investment plus maintenance of the value of the investment . . ." He stated that the information necessary for prospective investors is furnished only through adequate accounting.

Mr. Williams suggested that in securing the services of any one to install an accounting system the operator should be sure the person selected is someone experienced in accounting. "Do not get some clerk in a bank or office," he said, "who does bookkeeping evenings. The wrong start on this program can easily be worse than your present inadequate records."

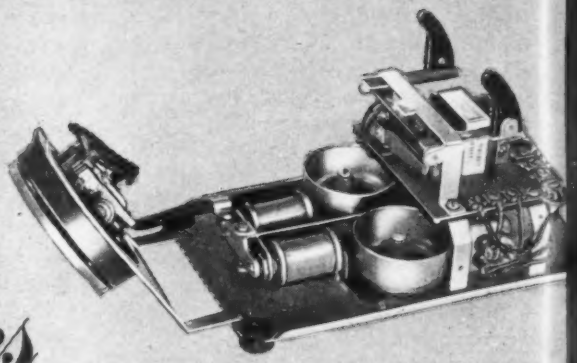
In his concluding remarks, Mr. Williams stated that "we are entering a period of a very unsettled economy and it is going to be through our accounting records that we will be able to determine the best course to pursue. Businesses with inadequate records will be floundering and groping about for something tangible in order to bring them out of the dark . . ."

(Please turn to page 38)

E. R. McKEAN, insurance director and safety advisor of the Western Light & Telephone Co., Kansas City, Kans., discussed "Accident Prevention" at the Iowa convention.


GOODYEAR
NET REVENUE
The potential net revenue from your directory may be higher than you think. The Loomis Company has proved this fact to scores of Telephone Companies both large and small.
As Directory specialists with over a quarter century experience, Loomis obtains more net profits for you, saves you the time, expense and headache of sales and publishing supervision. You receive an attractive, useful Directory with the maximum of advertising.
Let Loomis take over your Directory problems and increase your revenue, improve your company's public relations. Your inquiries are invited.
Loomis
ADVERTISING COMPANY
TELEPHONE DIRECTORY ADVERTISING
Gettle Bldg., FT. WAYNE, INDIANA
ST. LOUIS, MO.
KANSAS CITY, MO.
UPPER DARBY (Phila.) PA.
OMAHA, NEBR.

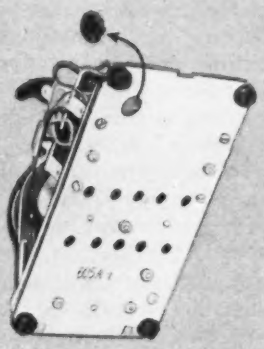
Two holes provided in the base plate make it simple and convenient to slip the dial mounting bracket into place. The dial mounting bracket swings away, making dial easily accessible for adjustment.



Extra Conveniences

MAKE THE LEICH TELEPHON SA

Knockout plug in base plate makes it possible to install Leich telephone on wall without any wire showing. Wire is brought out from hole in wall directly into the telephone.



You don't need a cigarette lighter in a car; or fog lights; or a radio. But when you do, these extras come in mighty handy.

It's the same with the new Leich telephone. Every one is a Super-Deluxe model... every one is equipped with all the conveniences you may need at one time or another.

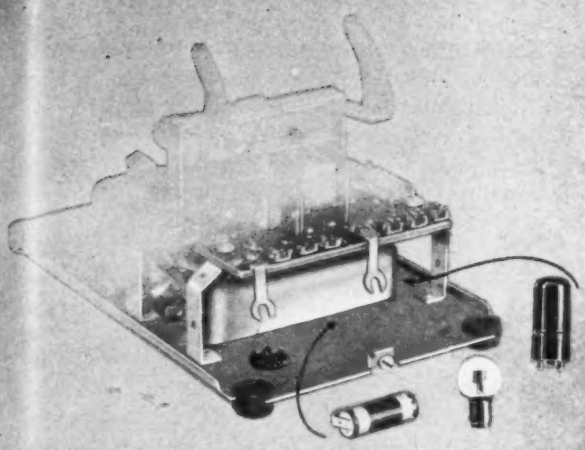
Take the knockout plug in the base plate for example. It's simple and not too important. But, in a new home with conduit wiring, you simply remove the plug and you can make a neat installation on a wall telephone.

You may never convert to dial either. Nevertheless, the new Leich dial mounting bracket makes it easy and simple to add a dial when you do.

We can't mention here every little thing our engineers have done to give you a more practical and sensible telephone instrument. Just these few items illustrated here will prove that the operating man's viewpoint was in mind at every stage of development.

If you installed a Leich telephone... at your own desk... you would really understand our enthusiasm. Why don't you? Leich Sales Corporation, 427 West Randolph Street, Chicago 6, Illinois.

Leich MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 190 AND D



Provision is made for mounting all standard tubes for tube ringing, including Western Electric No. 333-A, Vincent Rare Gas Relay type RTC, or a neon lamp.

ON SAFER MORE SENSIBLE INVESTMENT . . .

No cord connections in cover. Loosen one screw, remove cover and every part of telephone is instantly accessible. Notice ribs in high impact Bakelite for extra strength.

SPECIFICATIONS

Leich Common Battery Telephone

RINGER Leich Code 32. Two-toned gongs, easy adjustment, permanent cobalt steel magnet.

TRANSMITTER Western Electric Code F-1.

RECEIVER Western Electric Code HA-1.

INDUCTION COIL Leich Code 27. Maximum talking efficiency on both long and short lines.

CONDENSER Leich Code 58-A. Assures longer life, hermetically sealed against moisture.

HOOKSWITCH Leich Code 4-A. Carefully engineered and tested for positive operation whether telephone is used for wall or desk model.

TERMINAL PANEL Leich Code 011899. All terminals securely clinched in position to eliminate turning and shorting.

CASE Leich Code 011900. Bakelite. Good impact strength and lasting beauty.

This Leich common battery telephone can be used as a desk or wall model. There's nothing to change, add or buy. Just hang it on the wall or set it on a table. This feature makes your Leich telephone more convenient and practical.

AND DON'T FORGET

At the final convention session on Wednesday April 5, C. C. Pearce presided at a panel discussion of matters of current issue. R. W. Hedrick, secretary-treasurer of the Missouri Telephone Association served as moderator of the discussion. Panel members were: Vincent Lobaugh, telephone engineer, Des Moines; Walter A. Pirner, secretary-treasurer of the South Dakota Telephone Association, Delmont, S. D.; R. C. Reno, vice president and editor of Telephony Publishing Corp., Chicago, Ill.; Leonard Rhode, commercial manager, Central Telephone Co., Sioux Falls, S. D.; Leon Roberts, general representative of the Gary Group Operating Companies, Chicago, and C. A. Williams, certified public accountant, Sioux City.

Ohio Independents Elect E. J. Ward President

DIRECTORS of the Ohio Independent Telephone Association elected E. J. Ward, Lima, president of the organization during the group's 54th annual convention at the Neil House, Columbus, March 28-30. Other officers elected are: C. E. Williams, Marion, first vice president; Weldon W. Case, Hudson, second vice president, and Lloyd C. Wright, Columbus, secretary-treasurer.

David C. Mc McKell, Chillicothe, and Mr. Williams were reelected to the board of directors. Three new directors, J. I. Hunt, Middlefield and J. D. Park, Kenton, and Arno Pratt, Chesapeake, were elected. Mr. Pratt succeeds J. Henry George who has retired from the telephone industry.

A constructive and helpful program presented the following speakers: Robert Moulton, Ohio director of commerce; Rolland S. Jones, Athens, retiring president of the Ohio Associations; secretary Wright; Francis X. Welch, Washington editor of Telephony; Herschel C. Atkinson, executive vice president of the Ohio Chamber of Commerce; Gilbert Hiett, president of the Mifflin-Widowville Telephone Co., Mifflin; Harry M. Miller, chairman of the Public Utilities Commission of Ohio, and Mr. Ward who read the paper prepared by James A. Taylor, treasurer of the Telephone Service Co. of Ohio.

Departmental conferences were held on Tuesday, March 29. Eldon T. Burgess, traffic superintendent of the Northern Ohio Telephone Co., Bellevue, conducted the traffic conference; V. V. Hershey, plant engineer, Warren Telephone Co., Warren, presided over the plant and equipment conference; J. Warren Safford, president of the Troy-Tripp Telephone Co., Troy, conducted the traffic conference.

Secretary Wright, during his report, stated that the Ohio telephone industry, Independent and Bell, made a gain of more than 50% in the number of rural stations during the past five years. "It should be remembered," he said, "that the first two years of the five years were war years; that there was no free flow of equipment and materials, and that equipment deliveries still require much time. . . . "

Mr. Wright pointed out that individually, the Ohio Independent companies are small business concerns, but collectively, with properties having book values in excess of $60 million, with annual revenues of more than $17 million and payrolls exceeding $7 million, the business fills an important place in Ohio's industrial picture. . . . "

Washington

Another speaker, Mr. Welch during his address on "Washington Today and The Telephone Business," stated that "we know from the trade press reports that there exists a certain attitude in various administrative departments to the effect

QUALITY CONSTRUCTION *from* COAST TO COAST!

We specialize in the construction and maintenance of new, outside telephone plants or the repair and maintenance of existing plants. Our nation-wide experience, highly skilled personnel and the finest of modern equipment assure you a top quality job completed quickly and economically. Your inquiries are invited.

- All work done to A T & T specifications or the equivalent unless specifically requested otherwise by the customer.
- Technical advice on engineering and construction and assistance in obtaining materials assure you economy and a long-lasting, trouble-free plant.
- We are ready to assist you anytime, anywhere. Let us give you time and cost estimates on your construction, maintenance or repair jobs. No obligation. Call us today!

NEALE CONSTRUCTION CO.
ENGINEERING • CONSTRUCTION • MAINTENANCE
TOPEKA, KANSAS PHONE 4-2621

DR. C. E. JONES, Athens, Ohio, and C. S. CADWELL, president Automatic Electric Co., Chicago, photographed at Ohio convention.

that things could be improved in the telephone business."

"The first basic observation I would like to make this afternoon," he said, "is that the problems facing businessmen today are, to some extent, of their own making. First, because American businessmen have done too good a job of selling their products and a very poor job of selling themselves. Secondly, because they did not anticipate, in a positive sort of way, the need for doing some of the things which government insists on doing for the masses today.

"Let us take up that first point. Like a tired, bashful forgotten cook peeking out of the hot kitchen of American industry, the businessman sees his product enjoyed and raved about the world over as the prime example of America's superlatively high standard of living. But he rarely hears a spontaneous word of praise or recognition or even discussion about how these fine things came to be. That is all taken for granted. We have educated the American public to the view that they deserve nothing but the best. As a result, the business production machinery is best remembered when the service happens to fall a little short of the best. Then it comes in for the brickbats."

Mr. Welch stated that the popular reaction that has developed in the wake of such business miracles as mass production, standardization, and strictly promotional publicity has put "many of our people into a frame of mind wherein they are ready to believe anything, swallow anything, and assume that a promise given today is as good as fulfilled tomorrow."

"In one hundred years," he said, "the record of American business performance has transformed a thrifty, realistic, cautious population of practical pioneers, who carefully counted their change and bit their silver coins, into a nation of good-natured incurable optimists, who take miracles as a matter of course and become suspicious and critical only when somebody says that they cannot have something they want. . . . "

Mr. Welch pointed out that federal government today consists of over 1,800

(*Please turn to page* 42)

Seated (l. to r.): MR. AND MRS. ALLEN CRANE and MRS. DICK COLE, and MR. COLE, standing, watch Ohio convention proceedings.

RUNZEL CORDS

FOR Every TYPE INSTRUMENT

Finest workmanship in the trimming operation.

—

Highest grade materials.

—

Constant and varied inspections during the process of manufacture.

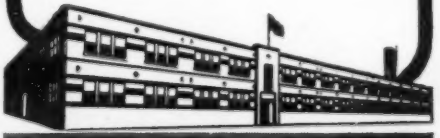
—

these features assure a consistent quality cord in every detail and are responsible for the clarity of reception for which RUNZEL CORDS are popularly known.

RUNZEL QUICK SERVICE

We carry large stocks of cords for all types of telephone service. Whether you need one cord —a dozen—or a quantity, you'll get prompt service on your order. Emergency requirements are given special attention.

You can RELY on RUNZEL



RUNZEL
Cord and Wire Co.
4723 W. MONTROSE AVE.
CHICAGO 41, ILL.

Balance Sheets PROVE tha
STROWGER AUTOMATIC LOS

Years of service in hundreds of Strowger Automatic exchanges throughout the world prove these facts:

1. Strowger Automatic has the lowest maintenance cost of any switching equipment.
2. Its operation is simple and straightforward—easy to follow, easy to understand.
3. Standard routines prevent trouble "before it starts."
4. Repairs are seldom needed and are easily and inexpensively made.

Strowger Automatic is "lifetime" equipment—good for years of trouble-free service. Proof of this is the fact that Strowger Automatic exchanges installed more than thirty years ago are still functioning dependably day in and day out.

Collectively, these Strowger Automatic features have benefited hundreds of telephone companies as their records will readily reveal. For you, too, installation of Strowger Automatic will bring real, tangible rewards. Don't take our word for it. Just ask any user and you'll buy Strowger Automatic.

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Regist
Sender-Translator Operation . . . Machine Switching Automatic Dial Syste
Makers of Telephone, Signaling and Communication Apparatus . . . Electrical Engineers, Designers and Consult

Distributors in U. S. and Possessions

AUTOMATIC ELECTRIC SALES CORPORATION, 1033 W. Van Buren St., Chicago 7, U. S.
Export Distributors: INTERNATIONAL AUTOMATIC ELECTRIC CORPORATIO

CARL SCHWOB, supply sales manager, Automatic Electric Co., demonstrates supply products to Ohio conventioners.

agencies, costing $40 billion a year to operate. Its combination of 37 banking agencies alone control an investment of $10 billion with liabilities of $100 billion —far displacing Wall Street in the scale of financial operations. "It takes," he said, "over a billion a year to maintain just the files of the Federal government—all of which would not fit inside the city limits of Columbus in stacks of five feet high.

"But the most menacing illusion of liberalism is the insidious idea that so-called cheap government financing, supported by borrowings and taxes, can be properly used to run our American business in place of the private investment upon which our nation was founded and grew to its present state of strength and world leadership. You in the telephone business must especially be on your guard on this front because steps are even now being taken in Washington to put the thin edge of the wedge, the camel's nose of government under the tent of your private enterprise.

"It is only a modest beginning—the rural area. You are being told that it is to help you to get cheap government money, to help you to do a better job for the farmer. There is no thought of government ownership. No indeed. These politicians really love you and your business just as they love the farmer and his vote. They want to help you to get ahead. You are being told that you ought to be glad and grateful that the government is taking such an interest in your business. Well, when the camel's nose gets under the tent, the first thing we know, the place begins to smell like a camel. . . . "

Mr. Welch stated that government financing is just another name for government control—particularly if it comes through an openly antibusiness agency which is more concerned about coddling tax-exempt cooperatives than in the private enterprise system to which it pays lip service."

"The danger in this approach towards Socialism by the easy route of government financing is that it catches us off guard. We are told, rightfully, that our government leaders are not Communists or Socialists. Like President Truman, they are mostly as old-fashioned Americans as fried potatoes and corn on the cob. They hate Communists. They stand at our front door with shotguns and dare the red rascals to show their faces.

"That's fine, as far as it goes. But what about the back door? When Socialism comes to America, it won't come in the front door. No, my friends, back-door Socialism is more insidious. There is no revolution. No dramatic coup d'etat, or sudden rush to "take over" private business. Instead we have what General Eisenhower has so truthfully called "creeping Socialism"—a slow gradual process whereby the area of tax-paying free enterprise becomes more burdened and constricted by an ever increasing area of tax-eating government enterprise. . . ."

In conclusion Mr. Welch stated: "I see American business now standing at the fork of three possible roads:

"(1) It can stay on the side lines and wait for some political accident to happen, such as the Bull Moose split in the GOP in 1912. That's taking a long chance.

"(2) It can crawl into a hole and wait for some economic accident to happen, such as the depression of the Thirties' which turned prevailing governments out of power all over the world, both liberal and conservative.

"(3) It can stop bucking the prevailing current by hopeless upstream gestures. It can, like a sailing vessel, use these very currents to give intelligent direction to its course. It must win over labor and unions by making them see where their real interest lies. It must win over the consumer in the same way. It must win over the farmer. It must spend some money and use its "know how" to whip this problem of telling the truth to a public which has been systematically deceived at its own expense. It must make concessions and alliances with a united business front—not just the telephone business, or the several utility businesses, but all honest business large and small. It must infiltrate this encroachment by government, in order to turn it back to the proper and productive channels of government."

Traffic

Mr. Burgess told members of the traffic conference that at the request of the

The TE&M Camera snaps the QUATMANS, of Lima, Ohio, during the Ohio convention. Left to right: GEORGE W., JR., GEORGE B., and FRANK.

THE WHITNEY BLAKE BULLETIN

DROP WIRE INSULATION

The development of a new or improved product receives wide acclaim. It is seldom recognized, however, that the **test methods** to evaluate the former product and to guide in the development of the new came first and deserved more acclaim but probably received little. Progress in drop wire development owes much to **new test methods.**

Physical characteristics of telephone drop wires influence their serviceability to a greater extent than do electrical properties. We have seen that considerable strength is required to prevent breakage due to sleet loads, falling tree branches and high velocity winds. High conductivity in the conductor is sacrificed to attain the desired strength with minimum size.

The electrical requirements of drop wires are not particularly severe. The required current flow is not more than 250 milliamperes and the EMF across a pair is probably 90 volts maximum. Capacitance requirements, too, are adequately met in present designs.

The support of drops at the ends inherently imposes severe physical requirements on the wire. At these points of support, the insulation is subjected to crushing loads with the conductor acting as a cutting instrument tending to shear its coverings.

Traditionally, the usual test method for evaluating rubber has been measurement of tensile properties. For evaluation of wire insulation, this test is helpful, but tensile properties of the rubber actually bear no relationship to service requirements. Improvements made in drop wire insulations over the past 20 years owe much to the compression and accelerated ageing test methods.

The rubber compression test consists in crushing a specimen of insulated wire between slowly closing flat jaws, the conductor itself acting as a shearing tool to cut through the rubber in which it is encased. By means of auxiliary instruments

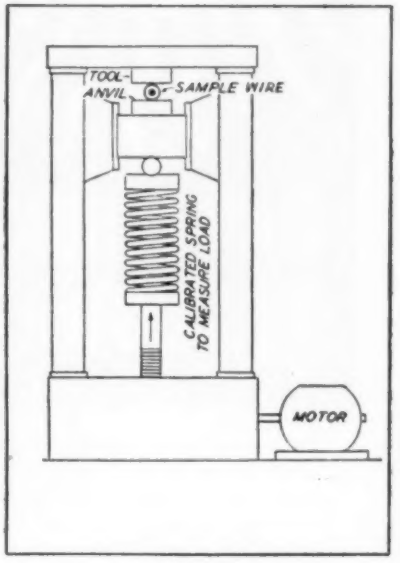


FIGURE 2

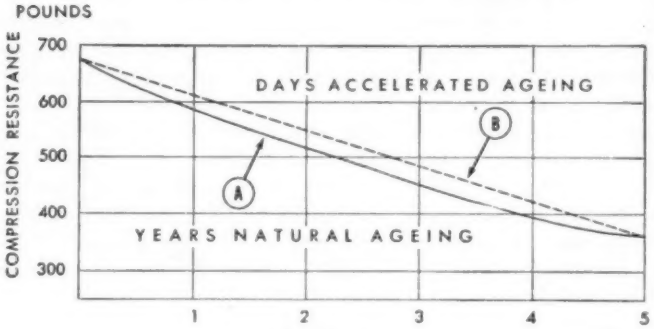


FIGURE 3

the load when cutting occurs can be determined with accuracy. Compression tests correlate satisfactorily with tensile tests but have the added advantage of bearing a direct relationship with performance required in service. This test method is now used universally for evaluating the quality of insulation on drop wire. A drawing of the equipment is shown in Figure 2.

Rubber deteriorates for the most part as a result of oxidation by oxygen from the atmosphere. The development of a test method in which rubber is subjected to pure oxygen at high pressure and at temperatures well above normal made it possible to age wire samples many years in as many days. Accelerated tests are useful, however, only if they can be correlated with actual experience. Figure 3 shows that the accelerated ageing test does correlate with actual life. In this figure, curve A shows the progress of compression resistance decrease for drop wire of some years ago with years of actual service. Curve B shows the same story over a period of 5 days accelerated ageing.

This wire of some years ago showed an original compression resistance of less than 700 pounds for a 2 inch specimen. After 5 years the compression resistance was little more than 350 pounds. Progress has been made since that time. Figure 4 shows the compression resistance of the synthetic rubber insulated conductors in Whitney Blake drop wires as produced today. The original compression resistance is 50 per cent higher than that of the wire of earlier days and after 21 days accelerated ageing, it is almost as good as the old time new wire.

GR-S, the general purpose synthetic rubber originated during the last war, is the basic material in compounding of insulation for all Whitney Blake outside telephone distributing wire both of the Teleprene and Weatherproof types. To take full advantage of its properties, a great deal of specialized study and experience in compounding this material is required. When this is done, the product offers greatly improved age resistance over the less expensive mixture of crude and re-claimed rubber commonly used for drop wire insulation.

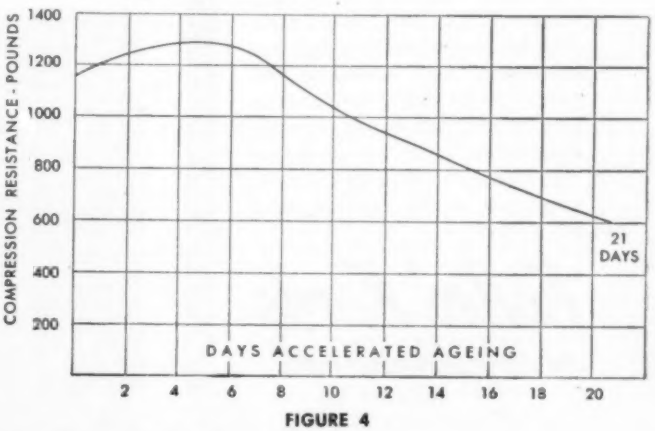
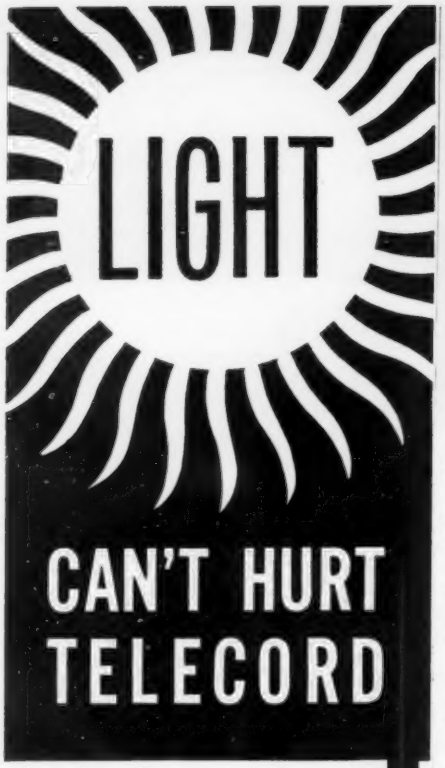


FIGURE 4

Reprints of this advertisement are available on request.

THE WHITNEY BLAKE CO., BOX K, HAMDEN, CONN.



The tough tire-tread type neoprene jacket protects the sulphur-free rubber insulation from deterioration caused by light. This is one of many reasons why TELECORD has been adopted by so many Independent Telephone Companies as standard equipment.

Light causes insulation to crack and check, permitting moisture, tarnish and other influences to do their harmful work. TELECORD prevents all this by being impervious to and impenetrable by light.

TELECORDS last longer, cost no more than old fashioned troublesome cords—they look better, they are better.

Put these long-life tinsel-conductor TELECORDS on your telephones for service to your customers and economy for you. TELECORD for use as line or receiver cords is available from your Independent Telephone Manufacturer trimmed to fit all standard desk sets.

Koiled Kords
INCORPORATED
NEW HAVEN 14,
CONNECTICUT

GUSTAV HIRSCH (center) and RALPH MATEER, Warren, O., photographed with a friend during Ohio convention.

board of directors of the Ohio Independent Telephone Association, a temporary traffic committee met in Columbus on September 8, 1949, for the purpose of selecting a permanent committee to function up to and including the annual convention.

"Following the election of officers," he said, "your committee set definite objectives for the remainder of the year. It was proposed that we develop plans for (1) encouraging all of the small, as well as the larger traffic offices, to hold group traffic conferences within various sections of the state on a quarterly basis; (2) to increase the traffic attendance and interests at the annual O.I.T.A. meeting; (3) to recognize the need for improving our service to a high level in order to maintain good public and personnel relations; (4) to give consideration to the mutual service problems of all of the offices represented at the district traffic conferences and seek approaches toward the solving of these problems, and (5) to build a better acquaintanceship and promote more friendly and understanding relations between and within the offices represented at quarterly group conferences, annual State and district meetings."

The program prepared for the traffic conference was arranged to present important subjects which vitally effect traffic department personnel. Mrs. Mary G. Hadlow, traffic supervisor of the Pennsylvania Telephone Co., discussed "The Chief Operator is the Heart of Our Business—and Why."

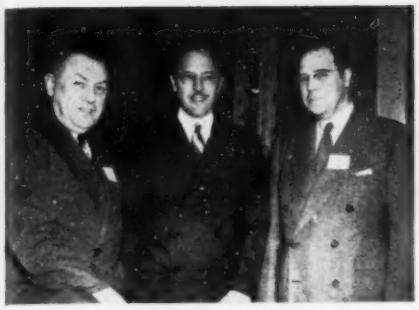
The new Employees Vocational Guidance program was thoroughly covered by Rex Andrews of the Warren Telephone Co. Mrs. Margaret Campbell of the Ohio Consolidated Telephone Co., Portsmouth, discussed economics of operating efficiencies, experience factor, operator units, equating for co-efficients for today's operating personnel. "The Operator and Inter-toll Dialing" was discussed by Joe Lehan, traffic superintendent of the Ohio Associated Co.

At the plant and equipment conference Mr. Hershey explained that the plant & equipment committee was appointed by the executive committee of the Ohio association and held its organization meeting on July 14, 1948.

Plans were made at this meeting to advise all member companies of the next meeting to be held October 27, 1948, which was open to anyone who might be interested.

"The present plans," he said, "are that these meetings be held four times each year, with one meeting being at state con-

Portion of cast of Portsmouth (Ohio) Telephone Co. in skit presented for Traffic Conference of Ohio convention.



GEORGE QUATMAN, Lima, Ohio, JACK ALBERT, Highland Park, Ill., and W. J. CAVERLY, Leich Electric Co., photographed during recent USITA Executives' Conference.

vention time. The purpose of these meetings, as was first set forth by the executive committee, is to bring together the employees of the various operating companies for an exchange of ideas on general plant and equipment practices, new materials and methods and for a discussion of the general problems we are meeting today."

Mr. Burgess presented the following speakers: James Willis, manager, North Lewisburg Telephone Co., North Lewisburg; Harry Kurlin, manager, Ohio Telephone Service Co., Sidney, and Robert Clark and John Hencshel, of the Ohio Bell Telephone Co., Cleveland.

Discussing "Held Orders And Our Basic Philosophy," Mr. Safford told the traffic conference that the industry members must face the facts. . . .

"We and we only," he said, "are entrusted with the task of providing telephone service to the public in our respective communities. The chance *we must* take is our investment in plant and equipment to meet the needs of the territory we serve. We have no other choice in a monopolistic enterprise and order.

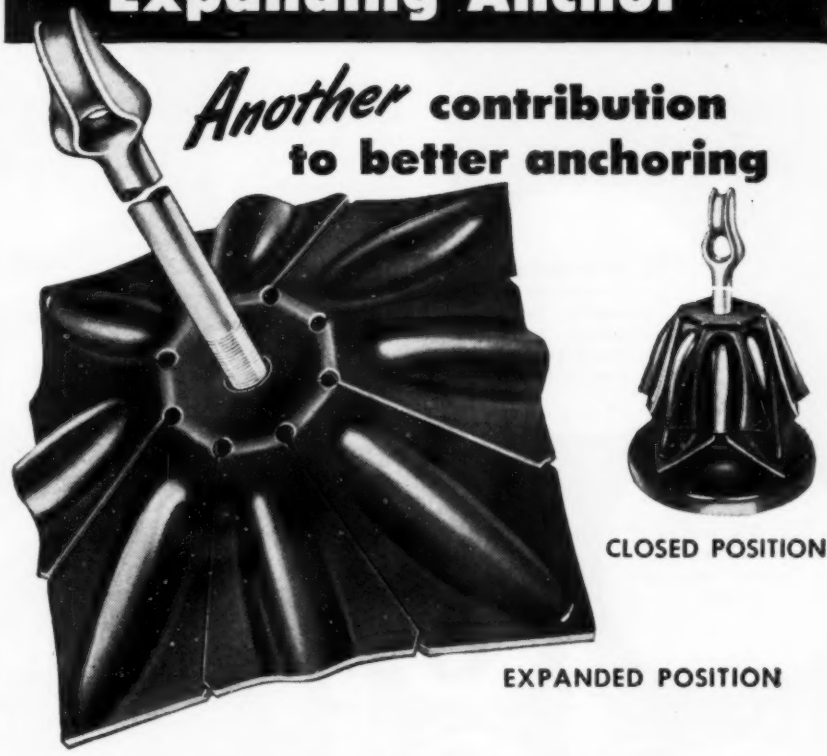
"We must make sure that our scarcity claims to the public are valid reasons and not mere excuses. Our policy cannot be a 'watchful waiting' one. It must be a positive aggressive one. If your need is material or equipment—Do you have it on order and how long? Is the delay due to you or the suppliers? If it is lack of man power, have you made an honest effort to secure the labor or are you waiting for applicants to come to you?"

Mr. Safford commented that "this is indeed a crucial period in our history and it calls for firm, courageous basic philosophy that stews from a great faith in our industry and its ability to ultimately surmount today's obstacles and remove all just cause for public criticism. . . .

While we are an enterprise organized for profit, our greatest objective should be service to the public for its attainment in the highest sense is the best guarantee of profitable operation."—THE END.

New CHANCE 8-way Expanding Anchor

Another contribution to better anchoring



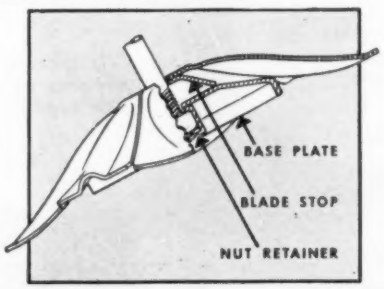
Here is one means of trimming increased line construction costs! The new Chance 8-way Expanding Anchor gives you more holding power for less money.

Better load distribution makes this new Chance Anchor stronger than other expanding anchors—and the absolute simplicity of its construction makes it the most smoothly operating expanding anchor on the market.

GREATER HOLDING AREA. Eight blades expand to form a square, with equalized load distribution all around the anchor. Each blade carries approximately one eighth of the load. There are no open areas between blades.

GREATER HOLDING POWER. The 8-way Anchor expands in the shape of a cone and holds like a wedge against undisturbed earth on all sides.

SIMPLE CONSTRUCTION. No moving parts, arms, or mechanical devices hinder the smooth operation of the 8-way anchor.



STURDILY BUILT. Each blade is formed with a reinforcing rib that prevents buckling. Hinges will not collapse under strain.

RETAINS SHAPE UNDER HEAVY LOAD. Repeated pull out tests show that the new 8-way Anchor develops more holding power under the same conditions than other expanding anchors of comparable size.

EASY, SURE EXPANSION. The pre-formed blades cut into solid earth with little disturbance and the pointed corner blades make starting easy. Linemen can tell when the anchor is fully expanded by the sound of the top plate hitting the bell-shaped blade stop.

BLADES ARE SUPPORTED BY BASE PLATE. They will not buckle down in the middle. The diagram, showing expanded position, illustrates how base plate supports blades.

NUT RETAINER, shown in diagram, makes it easy to push anchor to bottom of hole. The anchor rod and nut cannot be pulled through the base plate.

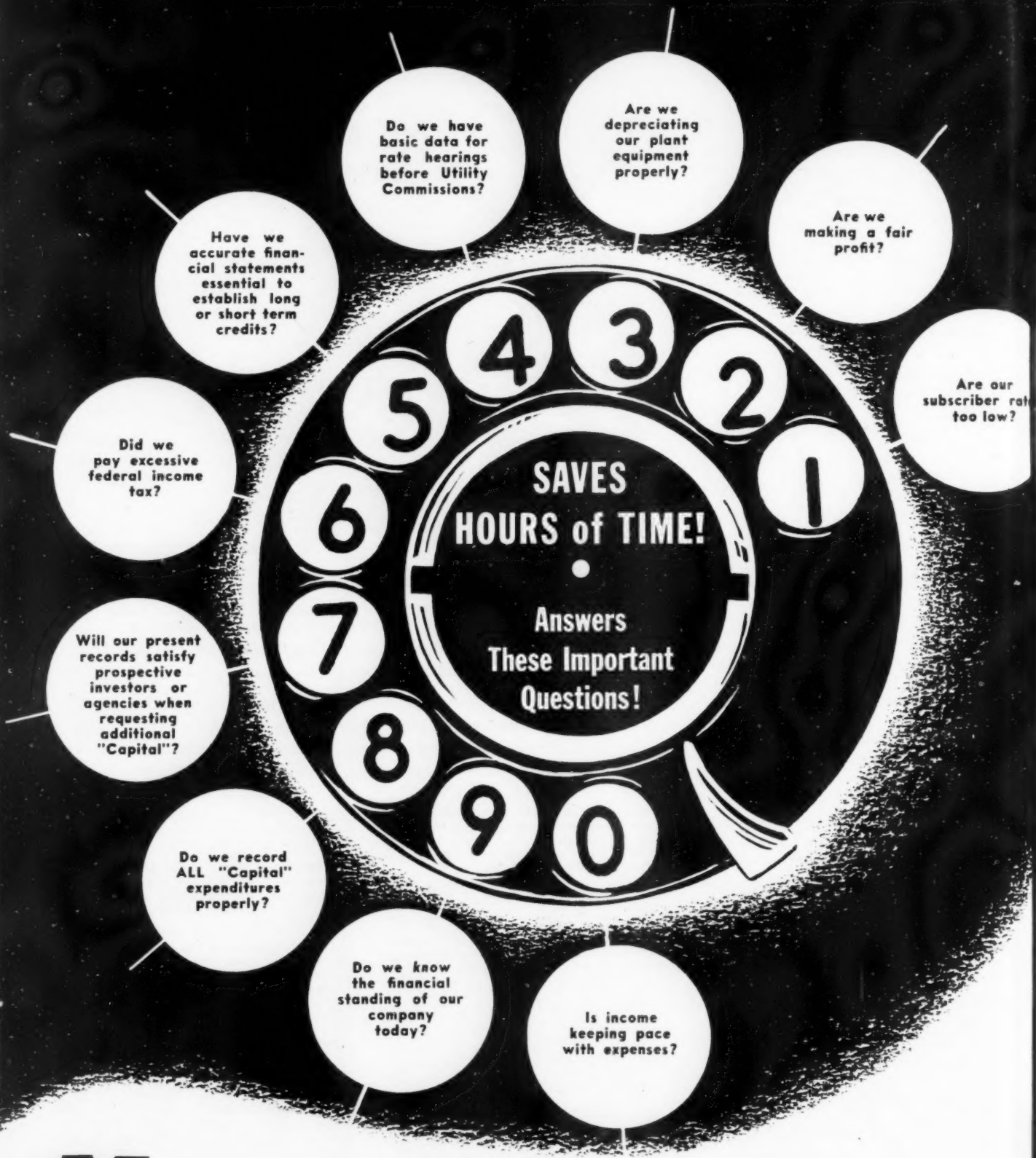
C4818

A·B·CHANCE CO·

CENTRALIA, MISSOURI • SAN FRANCISCO, CALIFORNIA

ABC INDUSTRIES

Get This AMAZINGLY SIMPLE as


Do we have basic data for rate hearings before Utility Commissions?
Are we depreciating our plant equipment properly?
Are we making a fair profit?
Are our subscriber rat too low?
Have we accurate financial statements essential to establish long or short term credits?
Did we pay excessive federal income tax?
Will our present records satisfy prospective investors or agencies when requesting additional "Capital"?
Do we record ALL "Capital" expenditures properly?
Do we know the financial standing of our company today?
Is income keeping pace with expenses?
SAVES HOURS of TIME!
Answers These Important Questions!

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

Established 1897

RECORD-KEEPING SYSTEM

6650 SOUTH CICERO AVENUE • CHICAGO

LE asy-to-Use RECORD-KEEPING SYSTEM

AT NO COST TO YOU!

Designed by KELLOGG After Thorough Study and Analysis To Help Independent Telephone Companies Simplify and Improve Record Organization.

NOW, FOR THE FIRST TIME . . . Kellogg makes available to *all* independent telephone companies . . . a simple, easy-to-use, easy-to-understand record-keeping system. Any company can keep accurate records, save time and money, and know where it stands financially.

THREE BASIC FORMS make up this system. You don't have to worry about "Credits", "Debits", "Journal Entries" or "General Ledgers." There are *no complicated, no confusing* bookkeeping or accounting terms to worry about. Instructions are complete, concise, easy to understand and follow.

YOU DON'T HAVE TO BE AN ACCOUNTANT to use Kellogg's simplified record keeping system. *Even if you've never kept a record* of any kind . . . you'll find it easy with the new Kellogg System.

MONTHS OF KELLOGG TIME have gone into the preparation of this simple record organization system. Mr. H. O. Edson, Assistant Treasurer of Kellogg Switchboard and Supply Company, has personally designed and simplified this system to include only bare essentials . . . the sound fundamentals of accurate keeping of vital records.

THIS KELLOGG SYSTEM is presently being *tested* under practical conditions in various typical locations throughout the country . . . to make sure it is as complete as possible in all details. Consideration has been given to individual State Utility Commissions and State Telephone Associations so that this system will be completely acceptable and coordinated with their requirements.

ANYONE CAN KEEP AN ACCURATE telephone business record with the Kellogg Record-Keeping System. And, soon the printer will have it ready for general distribution TO ALL INDEPENDENT TELEPHONE COMPANIES.

DON'T WAIT ANOTHER DAY! If your records are not being kept in an orderly manner, investigate. Mail the coupon today.

DO IT NOW!

MAIL COUPON TODAY!

© 1949 Kellogg Switchboard and Supply Company

Kellogg Switchboard and Supply Company
Customer Service Division
6650 South Cicero Avenue
Chicago 38, Illinois

Please put my name on the list to receive the Kellogg Record-Keeping System as soon as it is ready for general distribution.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

News Briefs

(Continued from page 25)

due to the rapid growth in suburban toll traffic in metropolitan areas. The system, as developed by Automatic Electric, provides facilities for automatically routing each call over the best available path, and for registering the numbers of the calling and called stations, timing the call, computing the charges. All of this information is recorded on a punched tape, which may be used for automatically printing a conventional toll ticket, or integrated with punch card accounting equipment by which entries are made automatically on the subscriber's bill.

The West Virginia engineers were impressed by the efficiency of the system, and pronounced the intricate precision of its operation "fascinating". The system is already in operation in California, and equipment for several installations is now in the process of engineering and manufacture.

Shawano, Wis., Independent Sells Its Properties

The Town Line Farmers Independent Telephone Association, Shawano, Wis. was recently dissolved by the board of directors. In existence since 1905, the Town Line Association was sold to the Wisconsin Telephone Co. and the Urban Telephone Co.

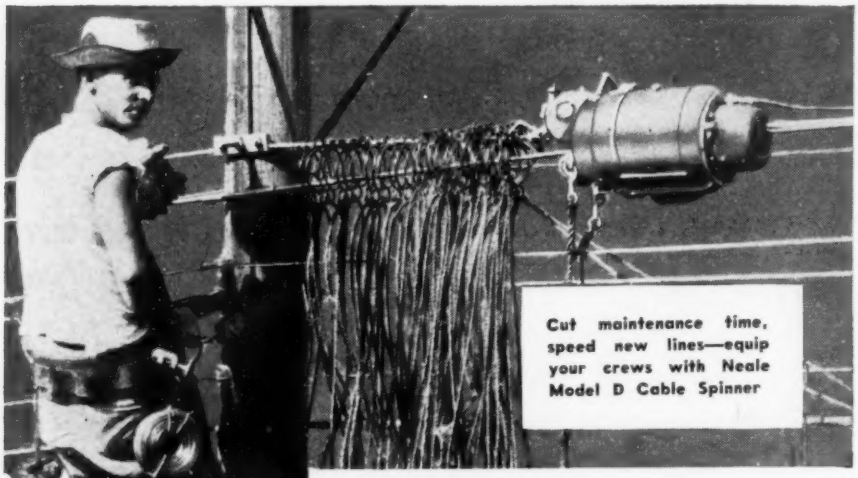
Industrial College Officers Visit Automatic Electric

Sixteen high-ranking students and faculty members of the Industrial College of the Armed Forces, Washington, made a tour of the factory, general offices, and laboratories of Automatic Electric Co., Chicago, on April 20. Their visit was part of a five day field course, designed to give first-hand practical information on industrial processes and problems at eight representative Chicago companies. The group was headed by Col. A. E. Michelsen of the Signal Corps, and included representatives from the Army, Navy and Air Force. The other delegates were: Col. J. A. McNerney, ORD; Lt. Col. I. S. Morris, TC; Col. L. P. Wells, Jr., INF; Capt. C. C. Anderson, USN; Comdr. R. E. Ball, USN; Lt. Col. R. H. Henderson, USAF; Col. E. M. Tally, USAF; Comdr. G. K. Hudson, USN; Mr. L. H. Henkel (Civilian); Col. R. B. Oxrieder, CE; Lt. Col. H. Walmsley, CML C; Comdr. W. W. Lippold, DC, USN; Lt. Col. J. N. Dick, USAF; Col. C. C. Harris, USAF; and Maj. P. W. Hutton, CAC.

All students at the Industrial College, which trains selected officers for important command, staff and planning assignments, have backgrounds of wartime service in key capacities, and are considered specialists in military science, technology and industrial mobilization. The yearly field trips are intended to give them a thorough understanding of the problems of management in industry, in all its phases.

The tour of Automatic Electric Co. was preceded by a short orientation talk, covering the organization, facilities and products of the company, and other information relevant to its operation. In two groups, the visitors were then conducted through the Laboratories and Engineering Department, and various factory departments, including Wire and Cable, Relay and Strowger Switch departments, and the Strowger Automatic switchboard final assembly and inspection sections.

Afterwards, the group joined in an informal question and discussion panel with company executives.



Cable Spinning Speeds Construction

Cable spinning cuts maintenance costs two thirds—that's why cost-conscious management everywhere is adopting cable spinning as standard procedure on new construction and line maintenance.

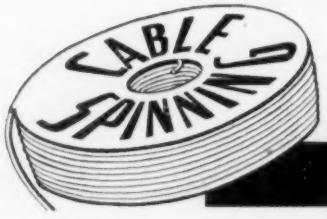
You'll find cable spinning fast, economical when your crews are equipped with Cable Spinning Equipment Company tools especially designed for the job.

Neale Model B One-Man Cable Spinner operates from ground or strand.

For BEST RESULTS Use NEALE Wire!

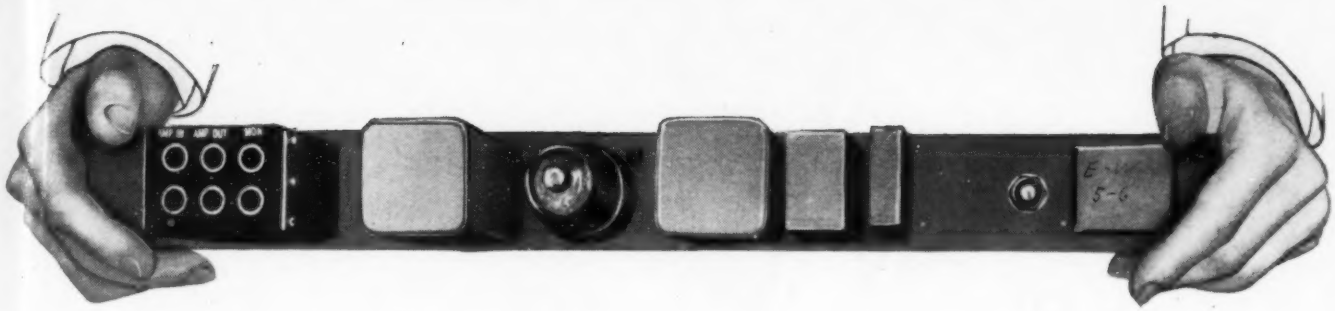
Available in 7 different types and sizes, Neale Spinning Wire meets the toughest construction or corrosion problems. Famous Neale Aluminum wire threads easily, weighs two-thirds less than steel, resists corrosion better.

WRITE OR PHONE your jobber for detailed information about Neale Cable Spinning Equipment—how it can save you money.

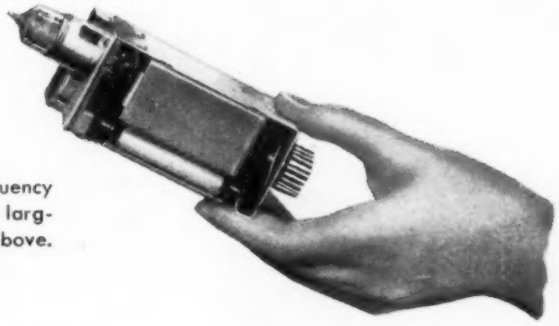


CABLE SPINNING EQUIPMENT CO.

TOPEKA, KANSAS Phone 3-1829



Sample of progress



This new single unit V-3 Voice Frequency Amplifier does the same job as its larger, costlier predecessor shown above.

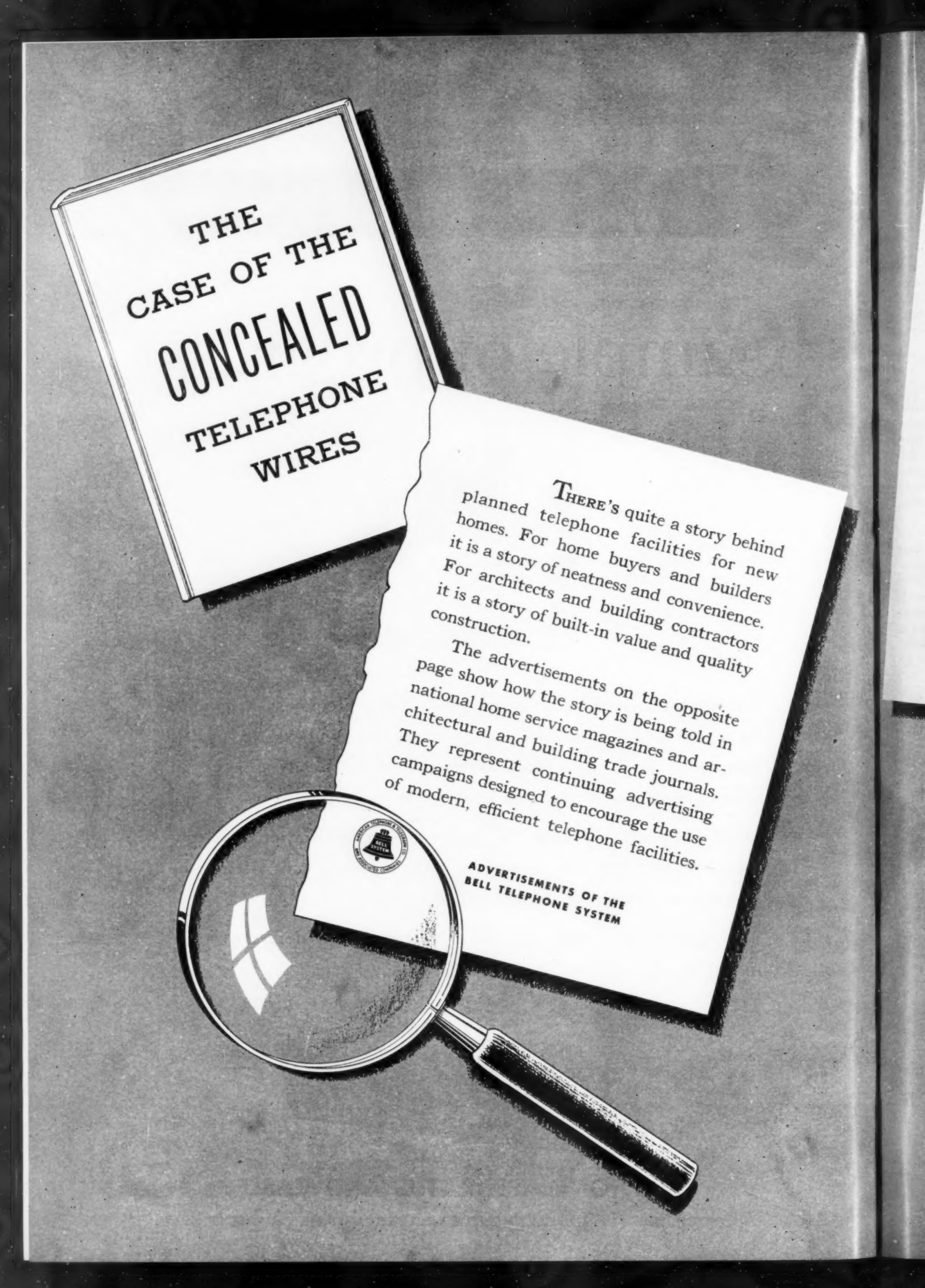
The new and remarkably compact V-3 Voice Frequency Amplifier, for use in long distance telephone circuits, is a good example of Bell Telephone Laboratories' and Western Electric's steady progress in making apparatus smaller and better at lower cost.

The V-3 is only one-sixth the size of its predecessor. It costs considerably less. And—because it is a single plug-in unit—it can be replaced in a matter of seconds for servicing.

Such improvements help give this country the best telephone service in the world.

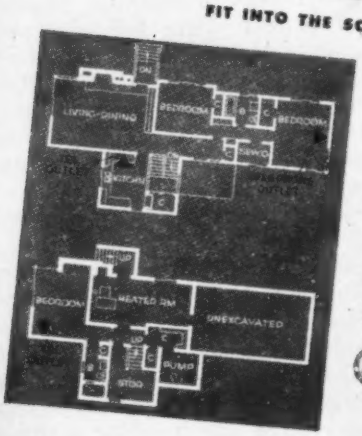
Western Electric

TELEPHONE APPARATUS AND CABLE


THE
CASE OF THE
CONCEALED
TELEPHONE
WIRES
THERE'S quite a story behind planned telephone facilities for new homes. For home buyers and builders it is a story of neatness and convenience. For architects and building contractors it is a story of built-in value and quality construction.
The advertisements on the opposite page show how the story is being told in national home service magazines and architectural and building trade journals. They represent continuing advertising campaigns designed to encourage the use of modern, efficient telephone facilities.
ADVERTISEMENTS OF THE
BELL TELEPHONE SYSTEM

Perkins & Hill and Edwin H. Mittelbeeler, Architects

TELEPHONE RACEWAYS FIT INTO THE SCHEME OF THINGS



Most new homes today are a blend of beauty and utility—everything in its proper place. And the proper place for telephone wires is out of sight.

Telephone raceways, installed during construction, will keep them from being exposed on walls and woodwork. And they mean another source of profit for you.

Remember—NO ELECTRICAL CONTRACT IS REALLY COMPLETE UNLESS IT CONTAINS RACEWAYS FOR TELEPHONE WIRES.

BELL TELEPHONE SYSTEM

TELEPHONE WIRES SHOULD BE HEARD FROM . . . BUT NOT SEEN

Are you planning your new home? Then you'll want to plan for your telephones at the same time. That way you'll avoid having exposed telephone wires on baseboards, walls and woodwork.

All you need do is mark on your plans the places where you'll want telephones. By telling your builder know these locations beforehand, he can make the necessary provisions for concealed telephone wires while the house is being built. A few sections of pipe or tubing placed inside the walls will carry telephone wires to built-in outlets. When telephones are installed, the wires can be run through these raceways to each telephone installed.

For all the facts about this important home feature, call your nearest Bell Telephone Business Office and ask for "Architects and Builders Service."

BELL TELEPHONE SYSTEM

The wet wireless of the Amazon jungle

IF YOU can beat a stick on a hollow log, you can send a message on this South American water wireless! With one end of the log in a lake or river, the sound will carry miles under water to a receiver.

Invented centuries ago by Indians, this odd communications system is still used in some deeper parts of the dense and little-explored Amazon River jungle.

Insulators, too, have their part in the history of communication. Since the invention of the telegraph and telephone, the name Hemingray has stood for the highest efficiency and dependability in insulation.

Hemingray Number 22

This advertisement is one of the Hemingray series on the history of communication.

HEMINGRAY INSULATORS

American Structural Products Company

MUNCIE, INDIANA

Subsidiary of **Owens-Illinois Glass Company**

(Continued from page 31)

Fig. 22—Standard Iron Wire Tie.

over streets and highways; 10 feet over residence driveways; and 8 feet over spaces and ways accessible to pedestrians only. Where the drop wire parallels a road, the minimum clearance is 18 feet for streets and alleys in town, and 14 feet for roads in rural dstiritcts.

To attach drop wire spans to buildings, a porcelain knob is required on wood frame buildings. For brick and stone buildings, a drop wire hook or a masonry hook is satisfactory. The two methods are shown in *Figures* 28 and 29. For intermediate points in the run, "C" knobs are utilized on buildings of wood frame construction in *Figure* 30. Bridle rings or drive rings in lead anchors are generally used on brick or stone buildings.

Station Installation Practices

STATION installation procedures consist of the following general steps, namely, bringing the drop wire into the building, installing the station protector; connecting the protector to ground, running the inside wiring to the telephone instrument, and installing the instrument.

Good judgement is required to properly "feed" the drop wire into the building. The wire entrance should be made in the rear wall of the building as the first choice, with either side wall as second choice. A direct vertical run to the entrance is best from the standpoint of appearance. The run from the entrance to

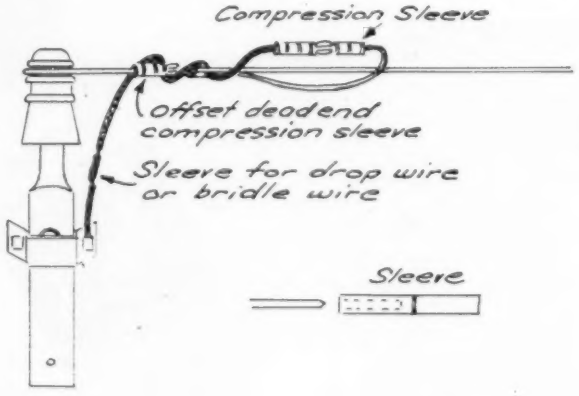


Fig. 23 — Using Offset Impression Sleeve at Dead End.

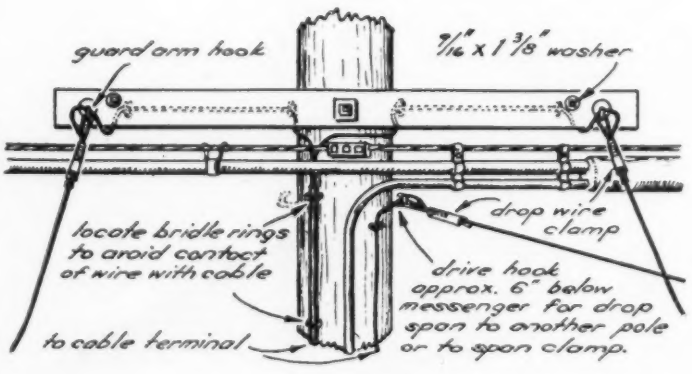
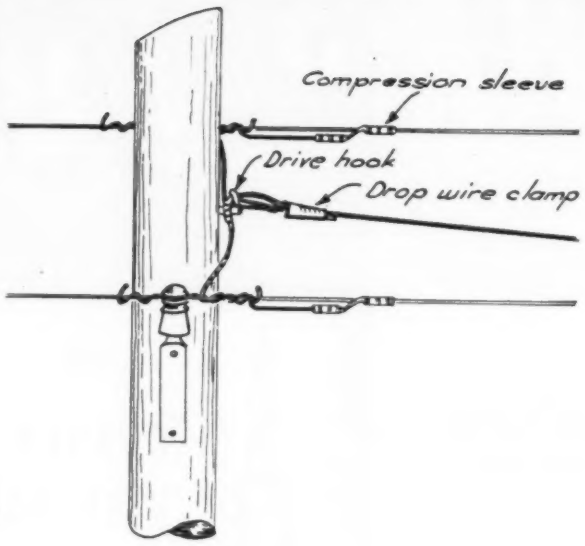

guard arm hook
9/16" x 1 3/8" washer
drop wire clamp
locate bridle rings to avoid contact of wire with cable
drive hook approx. 6" below messenger for drop span to another pole or to span clamp.
to cable terminal

Fig 24 —Use of Guard Arms for Drop Wire Feeds.



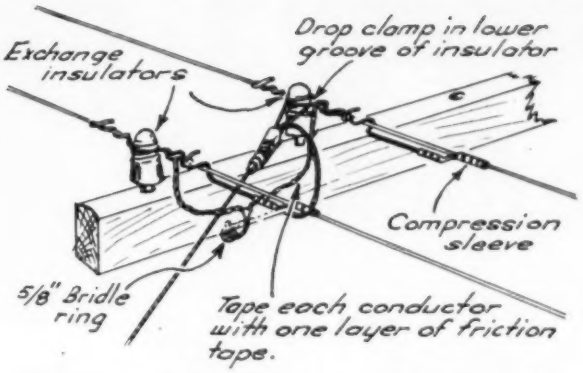

Drop clamp in lower groove of insulator
Exchange insulators
Compression sleeve
5/8" Bridle ring
Tape each conductor with one layer of friction tape.

Fig. 26 (above)—Method of Feeding Drops from Crossarm Leads.

Fig. 25 (left)—Method of Feeding Drops from Bracket 2-Wire Lead.

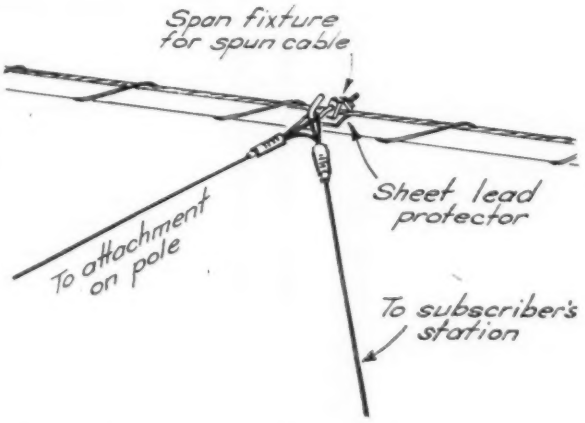


Fig. 27 (above)—Use of Span Clamps.

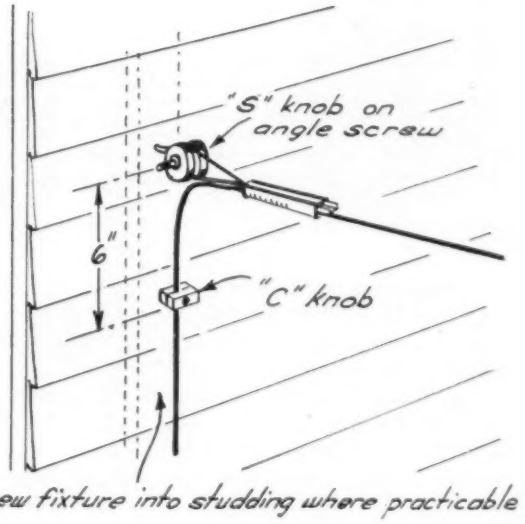


Fig. 28 (right)—Method of Attaching Drop Wire to Frame Building.

the protectors should be as short as practicable, consistent with a satisfactory location for the connection of the ground wire to a water pipe ground.

A typical method of entering the building with the drop wire is shown in *Figure* 31.

Holes drilled for the entrance should slant upward slightly to keep out moisture. If this cannot be done, a drip loop should be formed in the drop wire just outside the entrance. A porcelain tube is required to insulate the drop when entrance is made into a wood frame building.

Installing Station Protectors

BECAUSE of the ever present hazard of exposure to power lines and lightning discharges, a protector is needed at each station. The standard protector uses 7 ampere fuses with 350-volt protector blocks.

Two kinds of protectors are commonly used, the outside and inside types. The outside protector is especially advantageous for farm residences. Most station troubles occur in the protector and if the protector is located outside the residence, the trouble man can always check the protector before going inside the

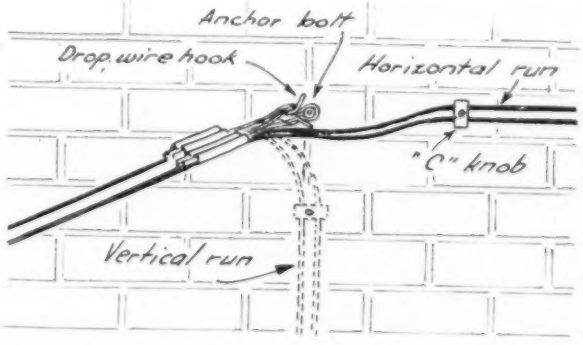


Fig. 29—attaching Drop Wire to brick building.

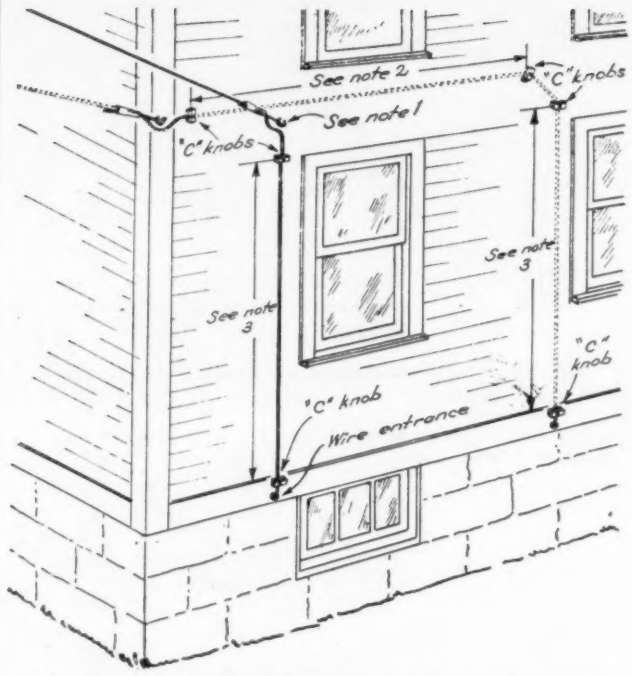


Fig. 30—Attaching Drop Wire Run on Frame Building.

Note 1: Locate first attachment at this or other points on building to make direct vertical run (solid outline) to protector. Use horizontal run (dotted outline) only when necessary for drop span to avoid obstructions.
Note 2: Place additional attachment if over 9 feet.
Note 3: Place additional attachment if over 12 feet.

house. In case the subscriber is absent from the farm, the troubleman can make his tests at the protector and quite likely clear the trouble, thus saving him a long trip for nothing. Outside protectors are also utilized at buildings having no basement or where the basement is very damp or otherwise not suited for locating an inside type protector.

Figure 32 illustrates a typical outside protector installation.

Inside protectors are adapted to installation in basements of buildings. The method of mounting an inside protector in a basement location is shown in *Figure* 33.

The exact location of the protector depends on the following factors: type of protector, location of the protector ground, and the location of the drop wire run with reference to the wire entrance or outside protector.

Installing Station Grounds

A GOOD GROUND connection is important to the successful protection of the station equipment and the subscriber's property from the effects of a power line cross or a lightning stroke. A high resistance ground can result in a dangerous voltage appearing at the protector with possible flashover or severe shock to the subscriber.

The ground connection is made in one of two ways, to a cold water pipe connected to an extensive water supply system or to a ground rod driven in a moist location. Connection should never be made to a gas pipe, electrical conduit, or sprinkler systen. An inside ground connection to a water pipe is illustrated in *Figure* 34.

When connection is made to a ground rod, a standard substation ground rod is used. This is usually a 3/8" x 6'0" copperweld or galvanized iron rod; however, successful installations have been made using a 1/4" x 5'0" copperweld ground rod. The installation method is depicted in *Figure* 35.

Station Wiring Methods

STATION wire runs are made with inside wire which consists of two or three textile and rubber covered conductors. (Plastic coated inside wire is coming into increasing use.) Two colors are available, brown for ordinary surfaces and ivory for light colored surfaces.

In the better class of residences, it is desirable to conceal the inside

(*Please turn to page* 56)

STROMB

chance pike poles

with reversible safety point

Recommended for raising ephone or power poles, as ground braces in p setting work. Made fr Douglas or Western Fir, from defects and lacquer Reinforced steel collar at protects against splinter Pike or ferrule available arately.

Safety point is reversible may be inserted into ferr to eliminate sharp projecti Replaceable when worn.

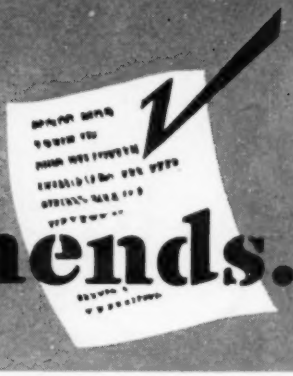
Wire lift attachment, for h dling telephone and low v age secondary conductors.

STROMBERGCA

STROMBERG Telephone CARLSON

TELEPHONES, SWITCHBOARDS - SO

BERG-CARLSON recommends...

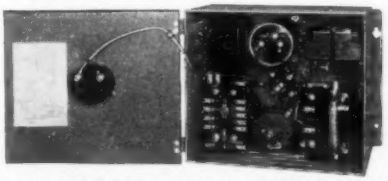


. . . bigger savings plus better service with raytheon rectifilters*!

For more than a decade, leading independent telephone companies have found that Raytheon Rectifilters are the most economical and efficient way to supply steady DC power to PBX boards directly from an AC source.

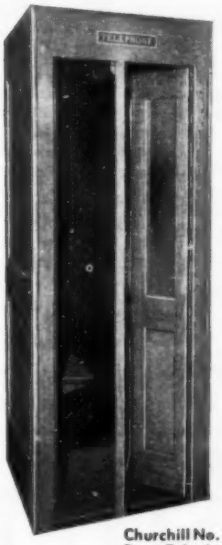
With no moving parts, the Raytheon Rectifilter requires neither adjustment nor maintenance. It will outlast many sets of batteries, release wires carrying charging current from central office to subscribers' PBX boards for revenue producing service, and minimize power cost because of high efficiency in converting from AC to DC.

Dry disc rectifying units and other components are designed for long-life, trouble-free service. The Raytheon Rectifilter will end your telephone power problems. Just plug it in, close the door —and forget it!



RFR 1044-G RECTIFILTER WITH DOOR OPEN

*Reg. U.S. Pat. Off.



The **churchill ventilated telephone booth**

Churchill No. 100 Folding Door Telephone Booth

Attractive—available in two finishes to harmonize with any interior. Included as standard equipment are electric light and automatic electric ventilator.

Users appreciate the comfort and privacy of a Churchill telephone booth—operating companies find it profitable.

Constructed as a single unit and equipped with reinforced back panel for mounting a wall telephone or coin collector.

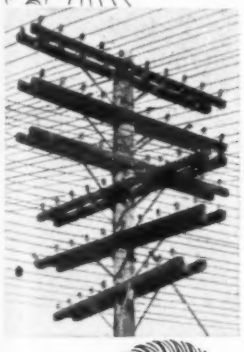
No. 100-A—Selected white oak, in light or medium oak satin finish.

No. 100-B—Birch, mahogany finish.

Overall height is 84¾"; width, 30½"; depth, 30½". Shipped knocked down and crated.

Illustrated literature available.

"dependable" *means both the trade-mark & the guarantee of cross-arms by* American Cross-Arm Inc.

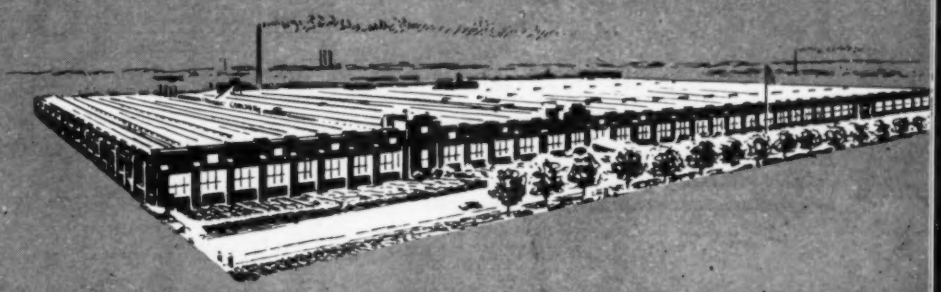


The finest pole and wire installation is useless if cross-arms fail. "Dependable" Cross-Arms are all that the name implies—made of sturdy, American woods, long seasoned, fashioned and finished to stand every weather condition from desert heat to mountain blizzards.

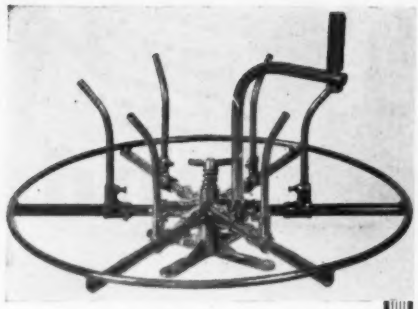
In Douglas Fir—Creosoted Yellow Pine or Gulf-Red Cypress.

RCARLSON

Factory, General Offices: Rochester 3, N.Y.
Branch Offices: Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto



QUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL INTERCOMMUNICATION SYSTEMS • RADIOS, RADIO-PHONOGRAPHS, FM AND TELEVISI



Ready Wire Reels

Payout and Take Up

Once again immediate delivery on this famous reel with the adjustable payout tension. Adjustable fingers for coils from 14 to 27 inches ID. Cone bearing adjusts itself to wear so it never wobbles. Made of steel and malleable iron, it is practically indestructible.

See the Suttle Spring Catalog

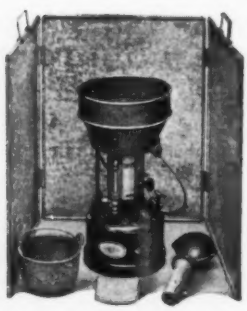
Manufactured by

SUTTLE EQUIPMENT CO.
LAWRENCEVILLE, ILLINOIS

DEPEND ON SUTTLE

SPLICER'S TOOLS
Of Top Quality by UNIQUE

- FURNACES
- SOLDER POTS
- BLOW TORCHES
- WIPING CLOTHS
- BALANCED LADLES
- SOLDERING IRON HANDLES
- THAWING TORCHES
- FOLDING SAFETY SHIELDS



Protect Public, Splicer, and Furnace. No. 50 C Shield shown here, of 20 Ga. galvanized steel. Reinforced edges. 23"x17" x17". No. 50 — four-sided with grate. No. 50 A — same without grate.

Your Jobber Has These Tools

UNIQUE MANUFACTURING CO., INC.
221 W. Walton St., Chicago 10, Ill.

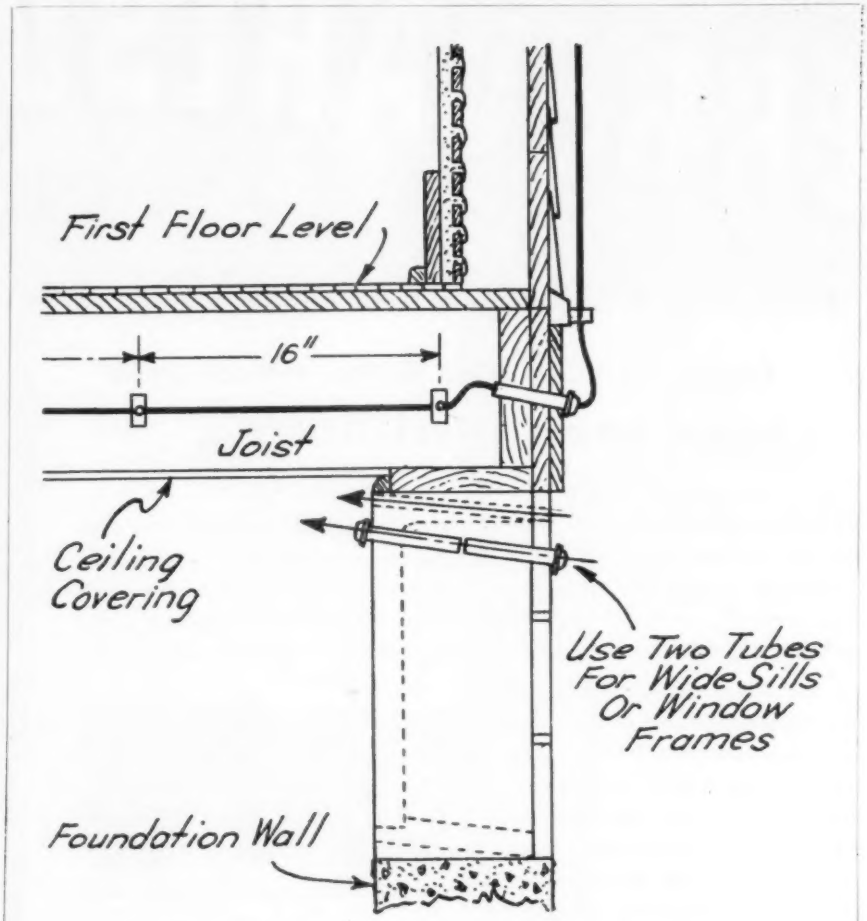


Fig. 31—Typical Drop Wire Entrance into Frame Building.

wiring as much as possible. The routing of the wire in this case should be planned so that much of the wire run will be in the basement with the remainder brought to the upper floor through an inside partition wherever possible.

An inside partition is always preferred for running wiring as it is easier to bore a hole into it from the basement than into an outside wall. There are little or no obstructions as in an outside wall where firestops and bridging are likely to be encountered.

In basements the inside wire is run in drive rings as ordinary wiring nails may crush the insulation and cause moisture to enter. Basements are prone to more or less dampness: hence, there is more chance for corrosion of inside wire conductors in this location. In other and drier locations, wiring nails are satisfactory. Wiring nails are attached approximately 16 inches apart while drive rings are placed approximately 4 feet apart in horizontal runs and 8 feet apart in vertical runs.

A typical inside wire run into an inside partition from the basement is shown in *Figure* 36.

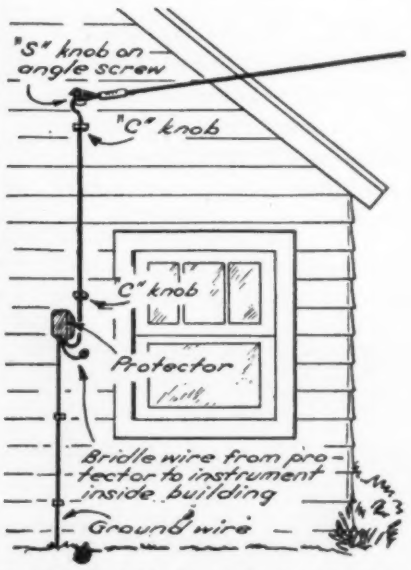
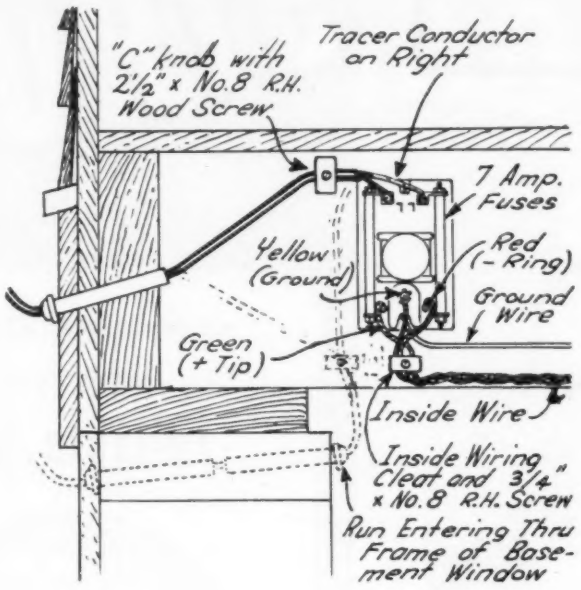


Fig. 32—Outside Protector Installations.

Installing Subsets

A SUBSET installation should be made where the subscriber wishes to have the instrument placed, consistent with safety and convenience to himself, and provided that the instrument will not be exposed


"C" knob with 2½" x No.8 R.H. Wood Screw
Tracer Conductor on Right
7 Amp. Fuses
Red (- Ring)
Yellow (Ground)
Ground Wire
Green (+ Tip)
Inside Wire
Inside Wiring Cleat and 3/4" x No.8 R.H. Screw
Run Entering Thru Frome of Basement Window

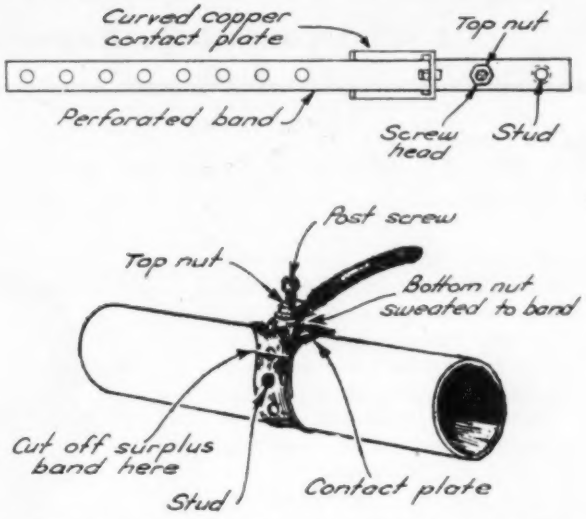


Fig 34 (above)—Connecting Protector Ground Wire to Cold Water Pipe.

Fig. 33 (left)—Inside Protector Installations.

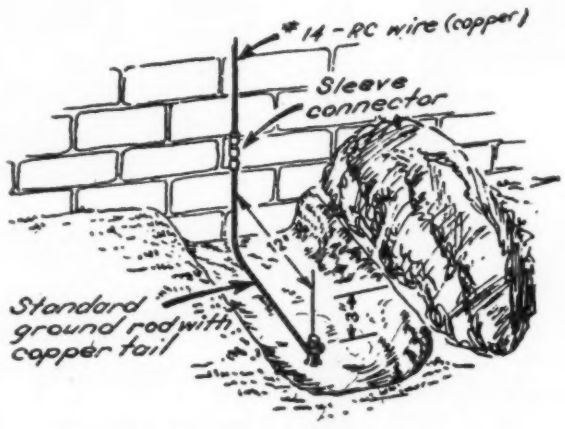


Fig. 35 (above)—Installing Station Ground.

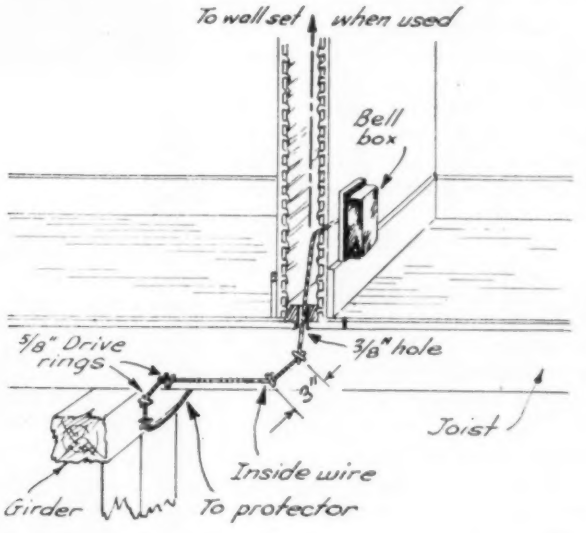


Fig. 36 (right)—Station Wire Run from Basement to Floor Above.

to chance of damage. Thus the instrument should not be located near stairways going down, in narrow hallways, or close to electrical fixtures (particularly in locations of frequent lightning strokes as on farms).

Locations of the instrument on a damp wall, close to a steam radiator or windows that are frequently open are not desirable. An instrument should not be installed on a flimsy table or on expensively finished surfaces where the dropping of a receiver or a hand set would mar the surface.

In the case of automatic instruments, good natural lighting is needed to make the dial clearly visible to the user. Artificial lighting is also a must in this location so that the telephone can be used at night.

Conclusion

THE CONSTRUCTION and installation methods just discussed are intended to illustrate typical practices. Limited magazine space has made it necessary to condense the instructions and cover only the most essential points. Actually a practice should be sufficiently detailed to give all the required in formation. It is possible in many cases to arrange detailed data in the form of tables to reduce tedious reading. Illustrations are an effective way of showing how work operations should be performed and reduce the amount of written text. Drawings are preferable to photographs as the latter are likely to include details not pertinent to the discussion.—THE END.

STARTING
In The
JUNE TE&M
Another valuable article by B. C. Burden—
"New And Improved Methods Provide Economical Tree Growth Control"
DON'T MISS IT!

(Continued from page 33)

these with some 125 toll centers and their tributaries complete their calls by dialing over the network to some 300 cities and towns. Large switching centers to be added this year are Cleveland, San Francisco and Oakland. These with their toll centers will materially add to the national toll dial network. There may be some Independent company exchanges included in these figures.

Operator toll dialing will increase the speed of toll service, particularly on calls involving multi switches. On the average an improvement in speed of 30 to 35% should result. Reduced operator use of circuits materially increase the pay time on circuits—this in spite of the more liberal circuit provision anticipated under the toll switching plan.

Although complete data on the probable operator saving which toll dialing will afford are not available, the following estimates are believed to be conservative.

Assume 100% toll dialing:

(1) Tributary Exchange, Manual or Automatic. Negligible.

(2) Toll Center Exchanges: "In" units reduced 80 to 90%; "Thru" units reduced 50 to 60%; and "Outward units reduced 10 to 15%.

The cost per 1000 units for the exchange concerned is used to equate the savings to dollars and cents. Judgement will indicate what part of this may be realized.

(3) Switchboard Positions: Determined on basis of units saved and the units carried per position in the exchange concerned.

Intertoll Dial Equipment:

(1) Tributary Exchange, Manual-Simple Trunk Circuit, relatively inexpensive. Equipment should provide switchhook supervision between the tributary and the outlet exchange.

(2) Tributary—Automatic Equipment. Provided with the initial exchange equipment the features required on the toll circuit equipment for intertoll dialing are only slightly more complicated and expensive than equipment formerly standard.

(3) Toll Center—Manual or Existing Automatic Exchange: Usually the cost of arranging a manual switchboard for toll dialing can be justified by the operator and position savings. Likewise in an existing

C. C. DONLEY, Lincoln, Neb.

automatic exchange with a toll train it is usually not difficult to provide the features required for intertoll dialing. This is not always true, however, therefore the cost of so doing should be investigated. A new automatic exchange of this class should always include a toll train with intertoll dial features.

(4) Control Switching Exchange: The special equipment required at a control switching point can be provided by Independent manufacturers.

(5) Types of Toll Impulsing: In the order of increasing cost: (a) Loop; (b) Simplex; (c) Composite; (d) Included as part carrier system; (e) Single frequency, and (f) Multi frequency.

The most suitable type for a given office can be best determined by an engineering study. In general, it is usually desirable to use composite rather than loop or simplex dialing on circuits of any appreciable length in order to permit subsequent creation of a phantom circuit.

(6) The Committee has considerable information on the equipment available for toll dialing. This information is available to those interested.

Music In Operating Room

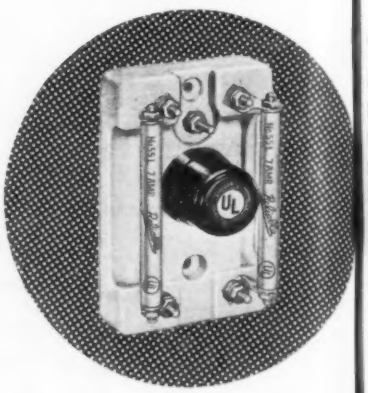
THERE IS at least one trial of "Music in the Operating Room" about which the following data may

(Please turn to page 60)

STROMBE

individual station protector

reliable 955



MFD. BY RELIABLE ELECTRIC COMPA

- One-piece Design
- Simplified Mounting
- Asbestos Mats Eliminated

The very simplicity of the Reliab 955 is assurance of long, troubl free service. Fuses are mounte on a one-piece, low absorptio porcelain, well spaced for co venient connecting. Reliable Se cleaning Sawtooth Discharg Blocks are standard, dissipatin static without time lag or dange of grounding the line. The 95 uses No. 55L, seven amper ceramic fuses.

"Reliable Identifies the Quality"

STROMBERCA

STROMBERG Telephone CARLSON

TELEPHONES, SWITCHBOARDS

BERG-CARLSON recommends...

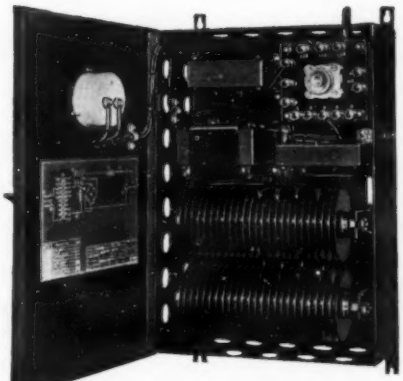
for accurate and rapid wire stringing or checking USE the dillon dynamometer

There's no guessing or uncertainty when a scientific Dynamometer is used to check wire tensions. *Easy* to use, *easy* to read, dead accurate. Works on new leads going up or *old* leads long established. Hundreds of satisfied owners in telephone and power fields. Reasonably priced. Decide *now* to save time and money with this useful tool. Prices on request.

keep storage batteries in peak condition with electrox automatic battery charger

Just *any* charger isn't enough . . . you need a charger which will maintain a charging rate in exact proportion to the drain on the batteries.

The type RB illustrated is completely automatic, with no relays, vibrators or bulbs requiring attention or adjustment. Entirely noiseless, it can be floated across the batteries, continuing to charge even while the telephone system is operating—with no hum or interference. Write for complete specifications.



Manufactured by Rectifier Division, Schauer Machine Co.

"number, please?" and the answer of course is:

sturgis 635FF

Remember that number—Sturgis 635FF. Let your operator sit supported and relaxed on a Sturgis 635FF Posture Chair and you, too, can sit back and relax. For here is a chair that keeps a girl in tip-top condition all day long because it encourages the posture that discourages fatigue.

The full saddle seat (16¾″ x 15¼″) is shaped and padded to insure even distribution of the girl's weight. The padded backrest (7″ x 13″) is curved to fit her back and has the exclusive Sturgis Follow-Flex back support which follows and supports her back through all the seated movements of a busy day. And three adjustments fit her individual needs.

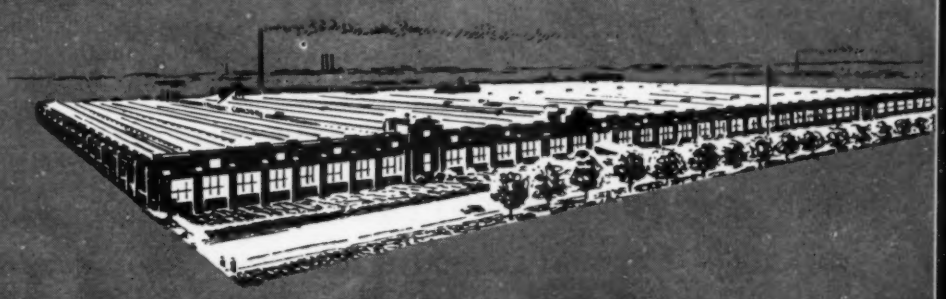
The Sturgis 635FF High Standard of tubular steel, welded at all joints, won't wiggle or squeak. Has genuine leather upholstery. Six adjustable seat heights:

18″ to 22″	24″ to 28″
20″ to 24″	26″ to 30″
22″ to 26″	28″ to 32″

DISTRIBUTED BY **STROMBERG-CARLSON**

RCARLSON

Factory, General Offices: Rochester 3, N.Y.
Branch Offices: Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto



EQUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • RADIOS, RADIO-PHONOGRAPHS, FM AND TELEVISIO

WHY PUT UP WITH THIS?

WHEN YOU CAN HAVE THIS...

THE NEW KOILED KORD

FOR ONLY *75c*

Give your customers the finest, longest lasting, most convenient telephone cord without extra cost to them.

The new Koiled Kord uses tinsel conductors, rubber insulated to provide maximum flexibility and minimum pull. The jacket is neoprene to protect against moisture, grease, acids, oil, perspiration and other damaging materials. The neoprene jacket resists abrasion and the patented koil prevents kinking thereby eliminating two of the greatest enemies of old fashioned fabric cords.

Measuring only a little over 8 inches long, the new Koiled Kord has an O.D. of .195 inches and weighs less than 2¼ ounces. It has a pull of only 1 pound when extended to its full length of approximately four feet.

Koiled Kords available trimmed to fit all standard desk sets. Specify type when ordering through your Independent Telephone Supplier.

Koiled Kords

INCORPORATED

BOX K,
HAMDEN CONNECTICUT

be of interest. After a two month period of use, a survey of 130 employees shows:

	Yes	No
Music makes time go faster	129	1
Music makes my work more enjoyable	127	3
Music interferes with my work	1	129
Music relieves fatigue	118	12
Music seems to make my fellow employees more pleasant and cheerful	126	4
Music keeps me from getting nervous	120	10
Music makes me nervous	2	128
Music makes me look forward to coming to work	115	15
I wish music would be stopped	0	130
Type of Music Liked:		
Popular—"Hit Parade" Type	125	5
Swing—Jive	59	71
Semi-Classical	118	12
Waltzes	126	4
Hillbilly & Western	38	92
Age and Education of Employees		
Group—Women	130	
18 to 25 years old	93	
26 to 35 years old	18	
36 to 50 years old	19	
High School	130	
College	15	
Business or Trade	11	

24 supervisors commented substantially as follows:

Interemployee relationships have improved. Employee-supervisor relationships have improved. Music in the operating room has almost eliminated non essential conversation at the board.

Practice Reminder Position Bulletin Cards

THESE ARE cards in color and are displayed at operating positions. Their purpose is to place emphasis, in a pleasant manner, on certain rather important phases of operating practice and technique. The attached copies of a few of these bulletins illustrate the method of carrying out this idea.

One company, and possibly others, have had marked success with a small booklet titled "Notes By And For The Traffic Department Of The Peninsular Tel. Co." issued monthly to the supervisory people. Among other interesting items it reminds the supervisory people of the objectives of the Traffic Department.

Inasmuch as dealing with our people is one of our most important jobs, it may be a good idea to consider a course in handling people designed especially for traffic supervisory people. From one who has experimented with this notion we are advised that unless instructors themselves can handle people there will be difficulty in accomplishing the desired result.

At least one very good traffic man we have talked with recently feels that much is yet to be accomplished in the matter of fully developing and training operators. For example in the manner of dialing—there is a fast method that is equally as satisfactory as a much slower one that is somewhat universally followed. The faster one saves about 2 seconds of operator time on an average 5 digit number. This traffic expert urges further operator training in speed of movement, overlapping and like operating items. He further states that the speed of service determined by observations and by analysis of tickets will give a fairly good picture of the overall grade of service for those offices which cannot justify a complete observation program.

Selection of Operators—Toll and Information

IT IS essential that toll operators be able to write legibly and that both toll and information operators be reasonably good spellers. Information operators, especially, should be able to improvise different spellings of like sounding proper names such as, "Cramer" or "Kramer", "Snyder", "Schneider" etc. One chief operator has found it helpful to her, when selecting new employees, to give an "aptitude" test which includes these items.

The Traffic Committee offers its services to those who may need help in the solution of traffic operating problems.—THE END.

Commercial Committee

By RALPH VANTRINE, Chairman, USITA Commercial Committee

THE PRINCIPAL purposes and responsibilities of the Commercial Committee are as follows:

(1) "This Committee shall deal with such general commercial matters as may properly be brought to the attention of the Association's members with a view of improving existing commercial practices. General studies of rate structures are included."

(2) "This Committee shall also keep in touch with studies being made by the N-A-R-U-C and F-C-C special telephone committee on the subject of local exchange rate struc-

tures, and represent the Association in those studies when invited to participate."

(3) "It shall also be the duty of this Committee to cooperate with the Committee on problems of small companies in connection with the rural telephone problem and any proposed Federal legislation relating thereto."

The membership of this Committee is scattered from the Pacific to the Atlantic ocean and from the Great Lakes to the Gulf of Mexico. Even though no physical meeting of the membership has been held, until during this conference in Chicago, some progress may have been made through the medium of correspondence between the Committee members.

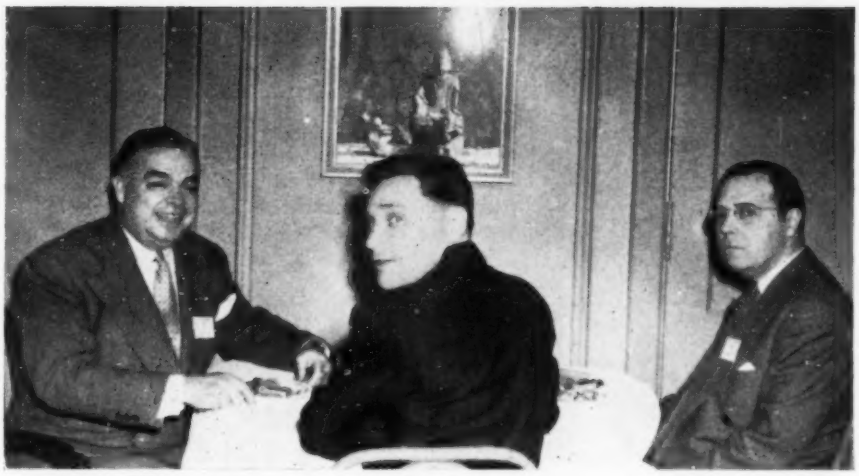
It is the purpose of this report to discuss briefly some of the matters which this Committee feels might be helpful to the Association's members particularly with reference to those subjects which are defined in the purposes and responsibilities of the Committee.

Held Order Situation

A REASONABLY accurate file of applications for telephone service that are held pending the future installation of plant or central office equipment is:

(a) Of great value in the engineering of central office requirements and in the layout of outside plant facilities.

(b) A means that may be used in estimating revenues, expenses, etc., in developing financial statements for the purpose of proving in the equipment and plant expenditures necescary to provide the requested service.



(L. to R.) RAY W. SMITH, editor of Telephone Engineer Publications; HOWARD BERSTED, Leich Sales Corp., and W. J. CAVERLY of Leich Electric Co., photographed during USITA Executives' Conference.

Many companies have in the past, at periodic intervals, sent letters to applicants for telephone service enclosing a postcard to be returned if service was still desired. Others have used a hinged postcard to accomplish the same purpose, which did the job at slightly less cost than a letter.

Some companies having a long list of unfilled applications now find that the use of the returned postcard for

INVEST YOUR "PIN MONEY" IN THE BEST

LOCUST PINS

Locust wood is practically impervious to decay and is impenetrable to moisture. Because of its close-grained hardness locust can be machined into strong, long lasting pins of standard specifications that can be counted on to retain their size and shape.

OAK BRACKETS

Oak pole brackets of unquestioned quality are in demand now as never before in the face of the qualifications necessary in the equipment and materials needed today to "keep 'em talking." Present day maintenance and repair have every reason to demand and get only the best.

GLASS INSULATORS

Research and experiment have produced in Hemingray insulators a glass insulator that is better than any ever before offered.

Non-porous, non-deteriorating, uniform coefficient of expansion and high mechanical as well as high dielectric strength are some of the many qualities that rank Hemingray the "best on the line."

BUCKEYE TELEPHONE and SUPPLY CO.
COLUMBUS 6, OHIO

BATTERY WATER
Right Off Your Tap!

HYDRION
DEMINERALIZER

Now it is practical for every central office to have pure water for the battery installation. With the advent of ion-exchange resins, mineral-free water equal in chemical purity to distilled water can be obtained directly off any water supply as needed . . . . why continue a poor practice of using tap water!

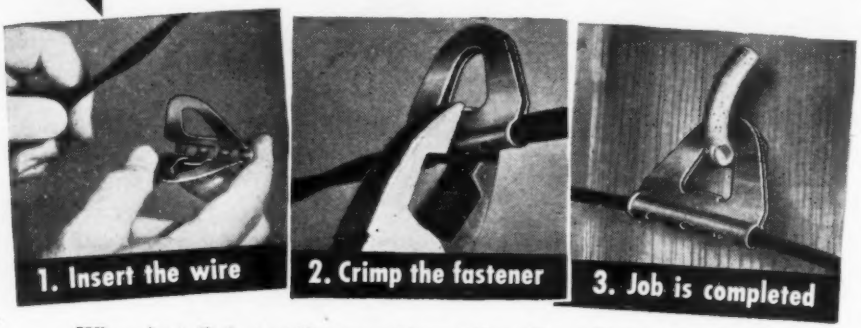
★ No heat, no power involved
★ Simple to use
★ Utilizes throw-away cartridges
★ Water purity 10 ppm
★ Low cost

Write for Folder HT

A. E. TOMKIN & CO.
1828 Columbia Rd., N.W.
Washington 9, D. C.

Speed Up Drop Wire Installations with Kearney Drop Wire Clips

Installation is simple and fast — using only a pair of ordinary pliers.



When installed, the Kearney Drop Wire Clip will stay in place. The wire is completely enclosed so that it cannot fall from the clip. It avoids spot loading, too, because it grips the wire over the entire length of the clip.

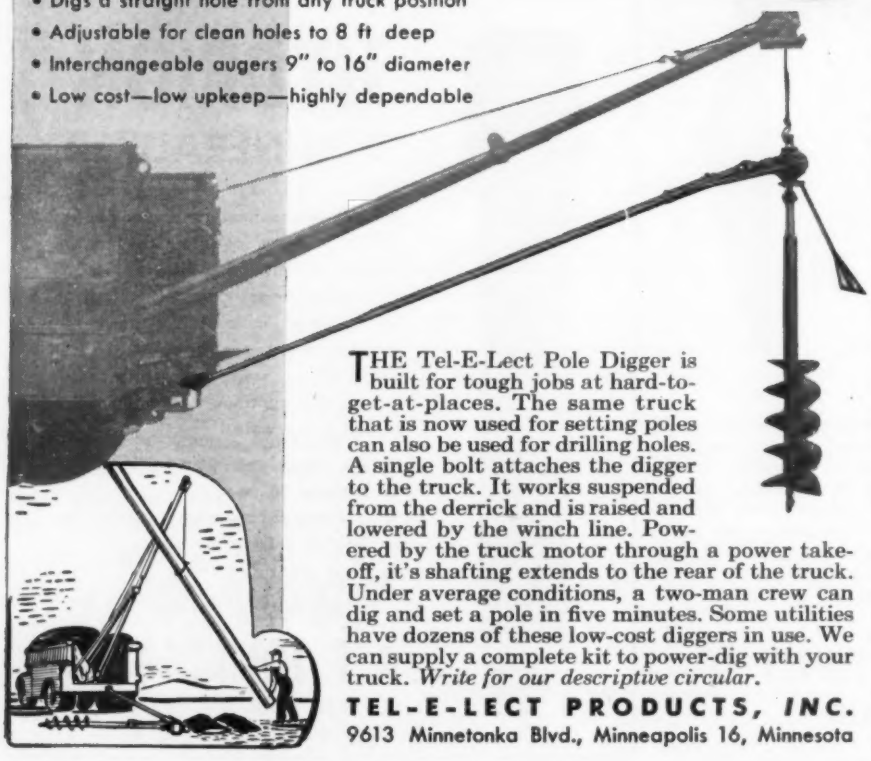
JAMES R. KEARNEY CORPORATION ST. LOUIS, MO.

For complete information and prices see your jobber or write

JAMES R. KEARNEY CORPORATION
4236 CLAYTON AVE. • ST. LOUIS 10, MO.
Overhead and Underground Utility Equipment

DIG HOLES WITH YOUR LINE TRUCK AND CREW
TEL-E-LECT POLE HOLE DIGGER

- Digs a straight hole from any truck position
- Adjustable for clean holes to 8 ft deep
- Interchangeable augers 9" to 16" diameter
- Low cost—low upkeep—highly dependable



THE Tel-E-Lect Pole Digger is built for tough jobs at hard-to-get-at-places. The same truck that is now used for setting poles can also be used for drilling holes. A single bolt attaches the digger to the truck. It works suspended from the derrick and is raised and lowered by the winch line. Powered by the truck motor through a power take-off, it's shafting extends to the rear of the truck. Under average conditions, a two-man crew can dig and set a pole in five minutes. Some utilities have dozens of these low-cost diggers in use. We can supply a complete kit to power-dig with your truck. *Write for our descriptive circular.*

TEL-E-LECT PRODUCTS, INC.
9613 Minnetonka Blvd., Minneapolis 16, Minnesota

screening or purifying the file of applications sometimes creates a very unfavorable reaction on the part of the applicant toward the telephone company, resulting in letters written in anger and personal contacts to the Commercial Office by applicants who have about lost their patience.

Under existing regulations, the United States Post Office will verify the correctness of names and addresses for one cent per address, minimum twenty-five cents, as provided for in the "Manual of Instructions for Postal Employees", Chapter 14 Article 10-17. The use of this postal regulation to determine the validity of held orders does not disturb those applicants who are living at the same address but does eliminate those who have moved and who, therefore, do not desire service at the location for which the application for service was originally made. Postal authorities have been very cooperative in using their facilities for this purpose and those who may care to utilize it may obtain full information as to the preparation and sizes of the card, etc. from the Postmaster in their community.

Collection Policies

THE MEMBERSHIP of this Committee feels that the attention of the Association's members should at this time be sharply focused on collection practices and policies. It will no doubt be worth while to make a complete review of present collection practices and, if necessary, make such general house cleanings as will bring collection procedures in line with present day conditions. Many companies have already felt the effect of excessive uncollectible accounts because of lack of suitable credit rating system of subscribers.

Personnel

BEGINNING with World War II the Commercial Departments have been the medium through which governmental priority schedules, affecting the establishment of telephone service, were administered to the public. Commercial personnel dealing directly with the public was trained in the administration of this task. At the close of World War II it was found necessary throughout the industry to continue similar priorities and even at this time, four years after VJ Day, many companies are finding it necessary to establish service through the use of priority schedules.

Commercial Department personnel during the past eight years have ac-

(*Please turn to page 64*)

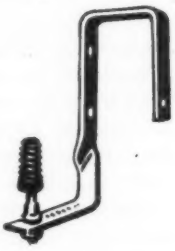
GraybaR RECOMMENDS

Crapo wire and strand

HTL-135, a telephone line wire of extra-high tensile strength, is extensively used in new construction. Spans of 450 feet in medium loading mean savings due to fewer pole structures. Crapo galvanized strand combines the strength of steel with the weather-resistance of rustproof zinc. Graybar can furnish Crapo wire or strand for every purpose.

Hubbard hardware

Hubbard transposition brackets, house brackets, crossarm braces, machine bolts, lag screws, guy clamps, ground rods, expanding and screw-type anchors all help simplify your construction problems and insure long life of your pole lines. You're *sure* when you "hang the load on Hubbard hardware," stocked by Graybar.



ORDER ALL YOUR POLE-LINE SUPPLIES VIA GRAYBAR

Graybar, pioneer supplier of pole-line items to the telephone industry, has always selected only proven products of leading manufacturers. Your local Graybar Representative is anxious to make your order his personal responsibility – he'll see that you get prompt deliveries. In addition, the experience of a Graybar Telephone Specialist is always available to help you solve any unusual technical problems. Besides telephone supplies, Graybar can provide everything you need for wiring, ventilation or lighting your building – and "intercom" systems to speed your office work. *Graybar Electric Company, Inc. Executive offices: Graybar Building, New York 17, N. Y.*

4948

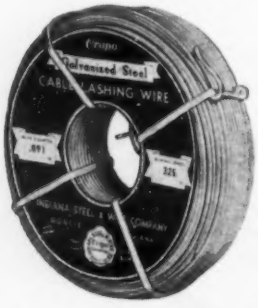
Crapo

Galvanized Steel* CABLE LASHING WIRE

AVAILABLE FOR PROMPT DELIVERY!

The new *Crapo* Galvanized Steel Lashing Wire (.091-inch diameter) now is available for almost immediate delivery. This improved wire has been developed especially for use with modern cable-spinning machines. It is manufactured from selected steel, carefully processed and heavily galvanized to conform, in every respect, to specifications approved by leading telephone engineers.

Crapo Galvanized Steel Cable Lashing Wire comes in neat, compact, thread-lay coils containing approximately 325 feet. Packed in cartons of 6 coils each.



Ask your Jobber or write direct!

*Crapo Cable Lashing Wire also is available in "Stainless Steel," .065-inch and .045-inch diameter.

INDIANA STEEL & WIRE CO.
MUNCIE, INDIANA

GEORGE RODORMER, Chicago, (left) and MR. & MRS. J. H. WRIGHT, Jamestown, N.Y., photographed during USITA Executives' Conference.

complished a very effective and worthwhile job for Management. Acting as a buffer between Management and applicants for telephone service has not at all times been a pleasant or interesting job. However, their efforts at holding the line permitted Management to devote more of its time to the planning, engineering and laying out of equipment and facilities such as would at the earliest possible date provide the means of satisfying the most unprecedented demand for telephone service ever experienced in the history of the telephone industry.

It may well be that our industry is rapidly approaching a time when Management will have to look closer to the functioning of Commercial personnel and devote more of its time to a program of training personnel, from priority handling tactics, into more normal commercial methods.

How many, if any, of the Commercial personnel dealing directly with the public were in that same position prior to the war and have any knowledge or experience of the methods and procedures suitable for use in dealing with present and prospective subscribers under normal operating conditions. Many of our member companies have already recognized the need for Management to open the door to the Commercial Department and find out what is going on between the company representatives and the present and prospective subscribers for service. To those who have started on this course it is immediately evident that a program for retraining Commercial employees to meet the conditions existing today is imperative.

Some members of our Committee feel that it may not be too far in the future that we will again be attempting to sell telephone service. That even now at exchanges having few or no held orders and with adequate central office equipment and plant facilities more attention should be directed to training and development of Commercial Department personnel toward the production of additional revenue at such exchanges. That in exchanges where construction work is under way to provide facilities for serving the held order applicants, attention should be given to a program of training the Commercial personnel so that it will readily convert itself into a smooth and well trained organization taking advantage of its opportunities in meeting with the public to develop and build the revenue production of the exchange.

Probably the most startling demonstration of Management failure to look forward and develop a selling team has occurred in the automobile business. It is not the intention of the members of this Committee to be alarmists or to attempt to prophesy the future. Rather it is intended to bring to your attention certain facts that seem evident and also to express to you the feelings and beliefs of the individual members of this Committee.

Many companies in the Independent industry now find themselves in an entirely different financial position than they were prior to the war. Because of the enormous demand for telephone service during the past few years large amounts of money have been raised to purchase and place in service telephone facilities to satisfy these demands. Companies which prior to the war had no debt and were able to maintain a good working cash balance may now find themselves burdened with debt, with the resulting heavy carrying charges and a very adequate amount of working cash. Ownership and management, having decided upon the raising of this money and its investment in additional telephone facilities, will now look to the commercial personnel to be instrumental in providing the additional revenues to support the carrying charges on the increased debt, the increased operating expenses, taxes, etc., and to rebuild an adequate cash working balance. It, therefore, may not be too early in any Independent telephone operation for Management to concern itself with the personnel of the Commercial Department and to start the training of that personnel along the lines that will build for its organization a progressive and efficient revenue producing team.—THE END.

Mayor Henry Arends placing the first call through the new Everett Strowger Automatic system, to his sister in the Netherlands. Standing, left to right: Ray Dalton, vice president and general manager, West Coast Telephone Company; G. E. Krieger, assistant general manager; L. H. Unzelman, commissioner of public works of the city of Everett; Artie Whiteley, commissioner of safety; A. W. Lambert, engineer, West Coast Telephone Company; A. M. Glassberg, editor of Everett Daily Herald; John Arends; T. S. Gary, vice president, Associated Telephone and Telegraph Company; Clare Dobler, president of Everett Chamber of Commerce; and Russell J. Loveland, engineer; West Coast Telephone Company.

Strowger Automatic Comes To Everett, Washington

One of the largest automatic conversion programs in the history of Pacific Coast Independent telephony was completed on March 19 when the four office network of the West Coast Telephone Company at Everett, Washington, was cut over to Strowger Automatic equipment. The conversion affected over 15,000 stations and was the culmination of nearly a year of work involving the erection of a new modern building and an expenditure totaling over a million dollars.

The automatic switching equipment, made by Automatic Electric Company, consists of 5100 lines of Strowger Automatic step-by-step apparatus arranged on a terminal-per-station basis. The new central office facilities also include a 32-position toll board, which was put into service a few days earlier, a 4-position information desk, and a 3-position test desk, all of them being supplied by Automatic Electric Company. The equipment was installed by the personnel of the West Coast Telephone Company headed by Daniel J. Tompers, equipment engineer, and Clifford Turnupseed, wire chief.

A new numbering plan for the Greater Everett area was set up to conform to the ultimate requirements of nationwide toll dialing, the four offices previously designated as Main, East, West and South now having become BAyview, CEdar, HIghland, PResident and TUxedo.

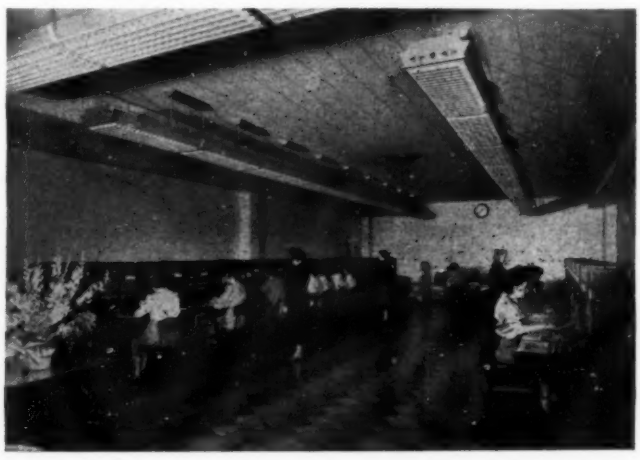
As a result of a careful program of newspaper and radio advertising, the subscribers were well informed as to when the cutover would take place and exactly what they should do about it. Largely as a consequence of this program, subsequent operation of the equipment was characterized by something approaching an irreducible minimum of difficulty.

The cutover was made the occasion for a midday celebration presided over by Ray Dalton, vice president and general manager of the West Coast Telephone Company, at which Henry Arends, mayor of the city of Everett, placed the first call. Entirely unknown to Mayor Arends, it had been arranged that he should be connected to his sister in the Netherlands, to whom he had not spoken for many years. The pleasure attending this first call over the new system may well be imagined.

The actual cutover was made in progressive stages between 11:15 p.m. and midnight. A party of West Coast Telephone Company officials and guests listened over a public address system in a nearby room to every stage of the operation. The verbal interchange of the orders, questions and tests were broadcast over the local radio from the desk of co-ordinator Dan Tompers who controlled the cutover from the start to the cutting of the last tie-cable. Representing the manufacturers at the cutover were T. S. Gary, vice president of Associated Telephone and Telegraph Company, E. R. Girard of the operating department of Automatic Electric Company, and West Coast representatives of Automatic Electric Sales Corporation.

As a result of the telephone company's well-planned employment policy, the automatic conversion was carried out with minimum disturbance to employee relations. Following the cutover, only twenty-two Everett operators were released from service and these were all temporary employees who had no expectation of continued employment in any case. This happy transition was brought about by the company's plan of employing, for a long period preceding the cutover, only former operators on a part-time or temporary basis, with the understanding that their employment would terminate when the new system was cut into service. The remaining local operators were trained and take over as toll operators at the new and larger long distance switchboard, or were

(Please turn to page 68)



The new 32-position Automatic Electric toll switchboard at Everett, Wash.

The city fathers gather to view the new XY equipment. John Cornelius, second from left, Stromberg-Carlson sales engineer, demonstrates, to Newton Falls councilmen, by removing a relay cover, the easily accessible relays and minor switch of a connector circuit plate.

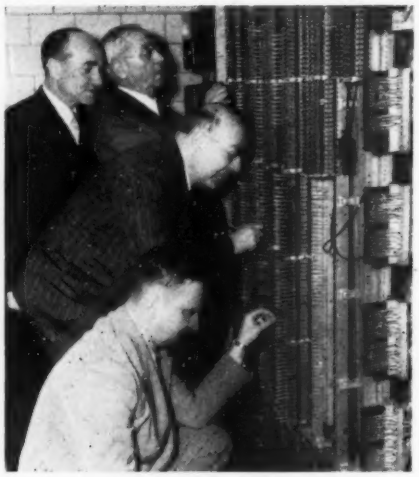
XY Dial System Installed At Newton Falls, Ohio

One of the largest Stromberg-Carlson XY dial systems yet installed in Ohio now serves residents of Newton Falls, Ohio. Formal cutover from manual operation was made recently in the presence of officials of the Warren Ohio Telephone Company, which owns the Newton Falls exchange, and Stromberg-Carlson.

Colonel Gustav Hirsch, president of the Warren group, disclosed that completely new equipment, including underground cable, subscribers' phones, the attractive new exchange building, and the XY dial system now gives Newton Falls probably the most modern setup of any community, its size in the United States. He estimated that the cost would approximate $350,000.

Present at the Newton Falls cutover were Hirsch, Ralph F. Mateer, vice-president and general manager; Russell E. Johnson, equipment engineer; E. M. Hiltabiddle, equipment superintendent; V. V. Hershey, engineer; R. M. Andrews, traffic superintendent; A. B. Wright, secretary; and H. H. Hoppe, director.

Other Ohio telephone men who were guests of the management were Roy Ammel, president of the Elyria Telephone Company; Weldon Case, secretary of the Western Reserve Telephone Company of Hudson; and Nelson Case, treasurer.



Pulling toothpicks from the main frame of the recently installed Stromberg-Carlson XY dial system in Newton Falls, O., are, from left, Roy Ammel, president of the Elyria Telephone Company; Col. Gustav Hirsch, president and consulting engineer of the Warren Telephone Company which owns the Newton Falls exchange; Ralph Mateer, vice-president and general manager; and Russ Johnson, equipment engineer.

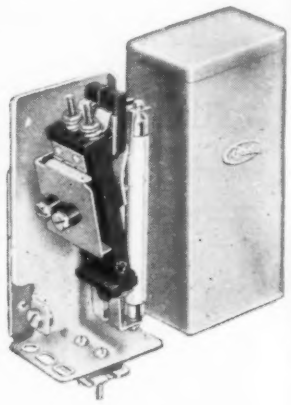
Stromberg-Carlson was represented by T. C. (Tommy) Thompson, telephone sales manager; Nathan W. Baldwin, Rochester sales manager; Ernest Browning, chief installer; John Voss, chief telephone engineer; John Cornelius, sales engineer; Walter Carlson and Frank Micka, sales representatives; and William D. O'Toole, publicity director.

STROM

cook type RO

outdoor sub-station protec

A very rugged Protector, asse
bled on a bracket of heavy stee
instead of porcelain—to take ro
handling and subscriber ab
without danger of breakage. O
outstanding features:



1. Uses a Cook Standard Type H Protector unit with molded bake-lite base for high resistance t electrical and physical shocks.
2. Protector unit contains both pri-mary and secondary arresters. The secondary arrester provides a path to ground for lightning should the fuses be blown.
3. Mountings contain heavy studs for connecting drop wires and ground.
4. Equipped with heavy zinc weath-erproof hood, and bracket for mounting on post, wall, etc.
5. All structural parts, including hood and bracket, are grounded.

STROMBER

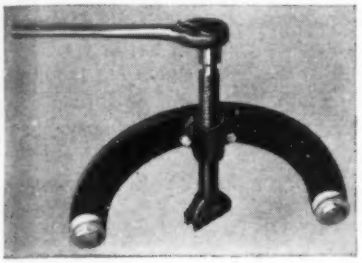
STROMBERG Telephone CARLSON

TELEPHONES, SWITCHBOARDS

...BERG-CARLSON recommends...

ratchet handle slack puller

made by Cable Spinning Equipment Co.



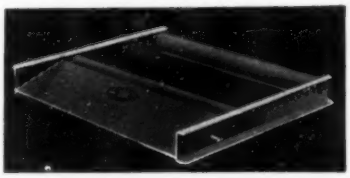
The same dependable Slack Puller, but with a ratchet added. This type of handle enables the operator to pull slack with the Little Giant Slack Puller, requiring even less effort than would be needed with the conventional model.

The correct tool for those who use the Puller day after day.

speed *reel-handling with* roll-a-reel

Handling heavy reels of wire, cable, steel strand or rope becomes amazingly easy, economical, and safe with Roll-A-Reel. This essential device saves time and money, both in the warehouse and on the job. Sturdy and simple, with "Tip-Toe" operation, it makes unloading or loading reels as easy as handling a spool of thread.

- Heavy gauge steel frame, capacity up to 2,000 lbs.
- Light-weight and portable; strong ball-bearing rollers.
- Low, slanted front for easy loading and unloading, eliminating use of jacks or other troublesome devices.
- Simple, positive roller lock makes reel removal easy.
- Width 30", depth 28", height 3½", weight 50 lbs.
- Stands upright in any end position for safety, convenience.
- Rear roller can be adjusted immediately for any reel size.
- Built for years of trouble-free service.



STYLE A—FOR REELS UP TO 28" WIDE

Also available in Style B for 2 reels 24" wide, or one reel 48" wide. Capacity 4,000 lbs.

long life telephone dry cells

"Eveready" "Columbia" "Gray Label"

• Higher sustained voltage • Longer life • Rock-bottom economy.

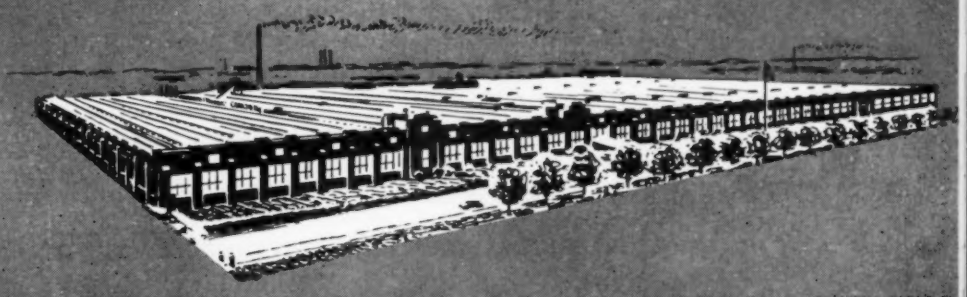
These qualities, more important now than ever before, are assured through the constant supervision of America's largest dry battery laboratory.

Made by the makers of "Eveready," "Air Cell" Operators' Transmitter Batteries.

The quality cell preferred by telephone engineers

...CARLSON

Factory, General Offices: Rochester 3, N.Y.
Branch Offices: Atlanta 3, Chicago 6, Kansas City 8, San Francisco 3. In Canada: Stromberg-Carlson Co. Ltd., Toronto



...MENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • RADIOS, RADIO-PHONOGRAPHS, FM AND TELEVISION

Party Line Transmission and Ringing Improved with Vincent Rare Gas Relay

May be Used with Harmonic or Coded Bells

Vincent Rare Gas Relay, RTC- 2. Ready for Mounting.

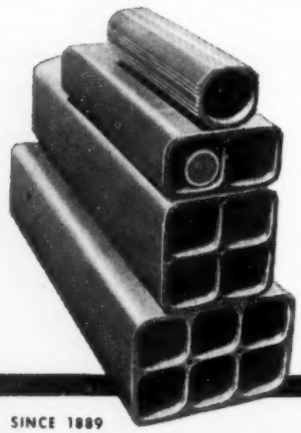
End objectionable noise interference due to transient and induced voltages, and provide additional lightning protection in bell circuits, with the Vincent Rare Gas Relay. Compact, non-mechanical, the Vincent Rare Gas Relay is easily inserted in the bell box, or at the ground connection or protector block on compact handsets, in series with each bell. It needs no further maintenance.

Since the resistance of the relay is practically infinity below 60 volts, its normal breakdown voltage, the line remains normally free from paths to ground. Ringing voltage of 85 volts ionizes the rare inert gases, is transmitted without difficulty.

The Vincent Rare Gas Relay may be used on magneto or common battery lines. Over 100,000 in daily use! Write for details.

L. S. BRACH Mfg. Corp.

Dept. X, 200 Central Ave., Newark, N. J.



SINCE 1889

NATCO

CLAY CONDUIT

The proved and standard Protection for Underground Telephone Cables.

Cheapest in the long run. Highest quality and a full line of shapes.

National Fireproofing Corp.

202 E. OHIO STREET, N. S.
PITTSBURGH, PA.

Everett, Washington

(Continued from page 65)

accounted for by the normal very rapid turn-over in employment.

The displaced Everett telephone system merits a brief description. It was unique. Installed in 1916, at its best it was probably faster than any other system of local telephone exchange service, manual or automatic, ever installed. It was semi-automatic in operation, a combination of automatic and automanual switching systems. It included automatic selection of an idle operator and the extension of calls directly to the operator in order of their availability; elimination of testing called lines for the busy condition except for customers having more than one line under the same number; audible busy signal on calling a busy line; audible "ringback" signals; and fully selective machine ringing. Calls landed directly into the earphone of any available idle operator and were of necessity answered immediately. The operator completed the call with a single cord and a selective ringing push-button; there were no answering jacks. The service was so fast that in the busy days of the 20's, Everett citizens would proudly point out to strangers that by the time one had removed the receiver from the hook and had placed it to one's ear, the operator was impatiently repeating "Number, please." Local operators with little training readily handled 450 calls an hour and the experienced girls regarded 550 and 600 calls an hour as nothing worthy of comment. The system gave excellent service until the war period found it badly overloaded.

The Everett, Washington, automatic installation is more than an ordinary elimination of outgrown equipment. It is tangible evidence that the Pacific Northwest is our last frontier and that the present astonishing increase in population of the Pacific Coast states is not merely a war development phase. Independent telephone operators in Washington and Oregon are meeting the challenge of a population trend as startling as any in our history since the great trek westward in the middle of the nineteenth century.

Charles H. Reese Joins Paragon Electric Co.

Charles H. Reese, who for over a quarter of a century has been associated

CHARLES H. REESE

with the Kellogg Switchboard & Supply Co., Chicago, has been appointed head of the telephone division of Paragon Electric Co., Two Rivers, Wisconsin. In this position he will have complete charge of sales of all the insulated telephone wire offered by Paragon. In this the leaders are the New Paragon H. T. Bronze Drop Wire and the New Genuine Ironite Drop Wire.

Mr. Reese was in the jobbing sales department of Kellogg for many years. Later he was on the road covering the middle-west territory, selling telephone equipment. In this work he acquired a practical working knowledge of the needs of every size exchange.

E. V. Platt, president of Paragon Electric Co. stated: "We are very happy to make the announcement that C. H. Reese is to head our telephone division. His many years experience in the telephone field, out selling and in the office, will enable us to give a service on telephone wire that is unequalled. As soon as he gets his work organized, here at the factory, he expects to go out into the field and renew a lot of his old acquaintances, and make new friends."

Practically all of Mr. Reese's business life has been spent in telephone work. He started, as a young man in the Hawthorne plant of Western Electric Co. where he remained until he went into service in World War I. After the war he entered Kellogg's employ and was with them until this change to Paragon Electric Co. He will make his headquarters at two Rivers, Wisconsin.

Kellogg Develops Simplified Accounting System

The need for adequate accounting information is more forcibly brought to the attention of all businesses during periods of either rising or falling prices. Many of the problems presently confronting small Independent telephone company operators could have been anticipated and

lessened if adequate financial records had been maintained. It is only through the information accumulated in basic accounting records that answers are found to such questions as: Are our subscribers rates too low? Are we depreciating our plant equipment properly? Are we making a fair profit? Can we furnish the credit information needed for financing plant expansion, etc?

Because, during the last five years, we have experienced changing price trends, small telephone companies have been abruptly faced with many of these questions. In many instances, the answers were not available.

The activity which has been evidenced on the part of our trade journals, State Telephone Associations and the United States Independent Telephone Association recently, concerning the small telephone company's problem, is a healthy indication that our industry, as a whole, is aware of the necessity of good records. Much of the effort now being put forth by the trade journals and our able state association secretaries in establishing accounting systems and services for the small telephone company may fall short of accomplishing their purpose if the manager himself is not fully aware of his need for adequate accounting records. All too often, those with the greatest need are those most unaware of the need. In the small business operation, the awakening may not take place until the problem becomes acute. Business failure can result from just such acute problems.

The Small Company Committee of the Iowa Telephone Association has recently announced a General Accounting Plan for small telephone companies. Other State Associations, through their secretaries, are actively engaged in assisting the small operators within their respective states on their accounting and rate problems. These efforts are being put forth to assist the small Independent Telephone Company to better manage their business operation.

In keeping with this trend of assisting the small telephone companies with their problems, H. O. Edson, assistant treasurer, of Kellogg Switchboard & Supply Company, has been working on the simplification of the necessary small telephone company record forms.

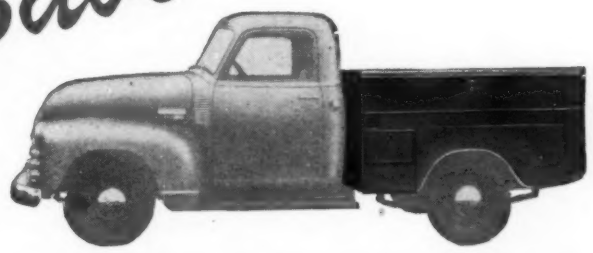
It has been Mr. Edson's conviction for many years that much of the effort made in behalf of small telephone companies to establish and define accounting procedures and practices has been based on the premise that financial accounts must reflect the refinements which have been devised as being essential for the complete interpretation of financial data. Unfortunately, many of these accounting refinements, excellent as they are, cannot be applied to small business record keeping unless a trained accountant is employed to prepare and interpret them.

The manager of the small company is the "forgotten man" in his scramble for bigger and better accounting records. He knows he should keep records, but generally he believes that he is obliged to apply to his own operations, the same complicated technicalities designed for the larger business. It is probable that the manager of smaller telephone companies may lose interest in keeping the financial records of his business operations, because of the difficulties he encounters in adapting "Big league rules" to his own small business.

The problem is obvious: Certain essential data must be kept, but the smaller operator usually has no advanced accounting knowledge and, therefore, it is difficult for him to prepare the basic data necessary for rate hearings before Utility Commissions or the financial statements essential to establish term loan credits, etc.

Recognizing the need for a simplified system of record keeping for small telephone operating companies, Kellogg Switchboard & Supply Co. will soon publish and release the system designed by Mr. Edson as a free service to small In-

Save UP TO 30%!



BUY YOUR TRUCK SERVICE BODY KNOCKED DOWN

SAVE on Freight. A much lower rate applies to the No. 60 KD ECONOMY "PACKAGED" Service Body.

SAVE unnecessary expense and delay — No back-tracking of chassis to body plant for body installation.

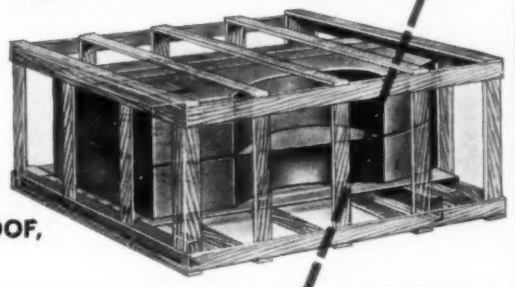
SAVE on original cost. No. 60 KD ECONOMY Service Bodies *cost less!*

DESIGNED FOR ½-TON CHASSIS

Comes to You in a "PACKAGE"

Can be assembled in 4 hours in your own garage!

Patented Lamson Lock Nuts furnished for VIBRATION-PROOF, RIGID assembly.



WRITE US FOR MORE DETAILED INFORMATION AND PRICES ON THE

NO. 60 KD ECONOMY SERVICE BODY . . .

By the makers of *Craftsman Bodies*

Depend on ALBION-DILLON ANCHORS

for Long Reliable Service

Made of Malleable Iron

You can rely on ALBION-DILLON expanding type anchors for *lasting* strength and holding power. For A-D Anchors are made with malleable iron to take advantage of its high tensile strength, toughness, resistance to corrosion and other outstanding features.

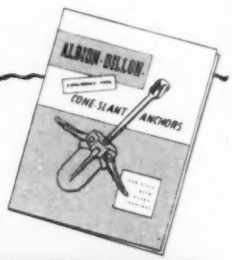
Three long cone-slanted blades (80% of anchor area is in the blades) dig neatly into solid earth to provide maximum holding power. Tests have shown that A-D Anchors will withstand a 46,000 pound pull!

Three sizes — 3", 4" and 6" — with two variations of blade spread in the 6" size are available. Rods are not supplied.

ORDER A-D ANCHORS FROM YOUR DISTRIBUTOR.

INSTALLED QUICKLY, SECURELY

A-D Anchors are easy to install. Attach rod and drop anchor to bottom of hole. A few blows with a spud or installing tool breaks light wire (used to hold blades together) and starts blades expanding outward. Added blows force blades into the solid earth until they're locked into position.



Send for Folder

A descriptive bulletin, specifications and prices are available. Send for yours.

ALBION MALLEABLE IRON CO.

"One of America's Foremost Producers of Malleable Iron"

ALBION, MICHIGAN

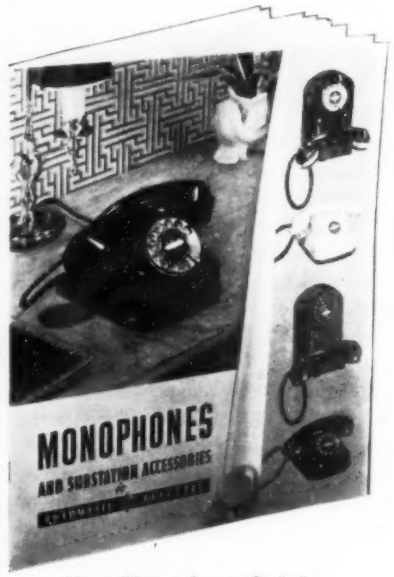
dependent telephone operating companies. The forms are presently being tested under practical conditions in various typical locations so that any obvious complexities may be eliminated before the system is generally distributed.

In the preparation of the forms, consideration has been given to individual state requirements as prescribed by the Utility Commissions through their account classification manuals. Special instructions coordinating the system to the particular State Utility Commission requirements will be furnished to those operating companies within the various states effected.

Those operating companies who are interested in reviewing the system and putting it to use in advance of the general distribution date may write directly to Kellogg Switchboard & Supply Company or any of its sales representatives, Attention: Small Company Service Division, and request that the forms and instructions be forwarded to them for their review.

Automatic Issues New Monophone Catalogue

A new illustrated catalogue, describing Monophones and substation accessories offered by Automatic Electric Company, Chicago, is now being distributed to the Company's customers in the Independent field and elsewhere.



New Monophone Catalog.

The new catalogue, designated as No. 4055-E, illustrates and describes all standard types of Monophone substation equipment, as well as accessories such as auxiliary signals, dials, cords, and keys.

Telephone company managers and others who have not yet received a copy can obtain one through the Com-

pany's field representative, or by writing to the Company offices at 1033 West Van Buren Street, Chicago 7.

R. S. Perry Named General Sales Manager of Federal

Raymond S. Perry, formerly president of the Eicor Corp., Chicago, and previously in charge of sales and engineering of several of the country's large industrial organizations, has been appointed general sales manager, Federal Telephone & Radio Corp., Clifton, N. J. Mr. Perry, a graduate of the Massachusetts Institute of Technology, will direct all commercial activities of Federal, American manufacturing associate of the International Telephone & Telegraph Corp.

From 1943 to 1946, Mr. Perry was a member of the board of Directors of the Olin Industries, East Alton, Ill., and in charge of the research activity for Western Cartridge, Winchester

RAYMOND S. PERRY

Repeating Arms and the other companies in the Olin group. Subsequently, Mr. Perry opened his own headquarters as engineering consultant, one of his clients being the Eicor Corp., the presidency of which he assumed in February 1948.

As the head of Eicor, Mr. Perry concerned himself primarily with the development of new products, and the marketing of the Company's line of equipments, including such items as tape recorders, D C. motors, alternators, converters and exciters. He resigned as president of Eicor in February of this year.

From 1931 to 1943, Mr. Perry was associated with the Ingersol Milling Machine Company, Rockford, Ill., occupying the position of Vice President in charge of Engineering and Sales at the time he terminated his connection.

PENTA POLES

Full Length Treated Northern White Cedar

P & H Penta Treatment was developed and tested in the Laboratory. Proven in the field.

Leading Telephone Companies Standardize on Penta Poles.

P&H

PAGE AND HILL, INC.

MINNEAPOLIS, MINNESOTA · 50 CHURCH STREET, NEW YORK, N. Y.

"STILL IN THE LEAD"

Distributed by AUTOMATIC ELECTRIC SALES CORPORATION · STROMBERG-CARLSON COMPANY

New LIGHTWEIGHT ELECTRIC PLANT

5000 WATTS D.C.

Weighs only 315 lbs.!

Model 5CK-115M, 5,000 watts, 115 volts D.C.

Use fast-working electrical tools on any construction or maintenance job with this high capacity, portable, compact electric plant. Equipped with four-receptacle box for direct plug-in of tools or lights. Available with carrying frame, or dolly-mounted. Powered by Onan 10 HP, two-cylinder, 4-cycle, air-cooled engine. Shipped complete . . . ready to go!

NEW ONAN "CK" ELECTRIC PLANTS are available in 5000 watts D.C., 115 and 230 volts; 2000 and 3000 watts A.C. in all standard voltages.
COMPLETE ELECTRIC PLANT LINE INCLUDES: A.C.—350 to 35,000 watts in all standard voltages and frequencies. D.C.—600 to 15,000 watts, 115 and 230 volts. Battery Chargers—500 to 6,000 watts, 6, 12, 24, 32 and 115 volts.
ONAN AIR-COOLED ENGINES—CK: 2-cylinder opposed, 10 HP. BH: 2-cylinder opposed, 5½ HP. IB: 1-cylinder, 3¼ HP.

Onan PRODUCTS

Write for catalog

D. W. ONAN & SONS INC.
5905 Royalston Ave., Minneapolis 5, Minn.

ONAN ELECTRIC PLANTS

ADDITIONAL Information on New Products or Service and Supplies of any Advertiser listed in this section may be promptly obtained by filling out the handy request for more information reproduced on the opposite page. All items are numbered. Check number of items on which more information is desired and send to Telephone Engineer Publications. Kindly mention Telephone Engineer Publications when contacting advertiser direct.

the New Products Showcase

New Products & Supplies of Practical Interest

ADVERTISING, Directories—L. M. Berry & Co., 637 Telephone Building, Dayton, Ohio.—[ADV. 3]

ADVERTISING, Directories—General Telephone Directory Co., 604 Pine Ave., Long Beach, Cal.—[ADV 4]

ADVERTISING, Directories—Loomis Advertising Company, 20 W. 9th St., Kansas City 6, Mo.—[ADV. 5]

ANCHORS, Albion Malleable Iron Company, Albion, Mich.—[ADV. 5a]

ANCHORS—A. B. Chance Co., Centralia, Mo.—[ADV. 6]

ANCHORS—James R. Kearney Corp., 4224 Clayton Ave., St. Louis, Mo.—[ADV. 7]

BATTERIES, Dry Cell—National Carbon Co., Inc., 30 E. 42nd Street, New York 17, N. Y.—[ADV. 8]

BATTERIES, Dry Cell—The Ray-O-Vac Company, 2317 Winnebago St., Madison, Wisc.—[ADV. 9]

BELTS—CLIMBERS—SAFETY STRAPS, W. H. Bashlin Co., Bashlin Building, Grove City 1, Pa.—[ADV. 10]

BELTS—CLIMBERS—COMPLETE LINEMENS' EQUIPMENT, Buckingham Manufacturing Co., 7-9 Travis St., Binghamton, N. Y.—[ADV. 11]

BELTS—CLIMBERS—SAFETY STRAPS, M. Klein & Sons, 3200 Belmont Ave., Chicago 18, Ill.—[ADV. 12]

BOLTS, Expansion—Star Expansion Bolt Co., 147 Cedar Street, New York, N. Y.—[ADV. 13]

BOOTHS, Acoustic Telephone—Sherron Metallic Corp., 1201 Flushing Ave., Brooklyn 6, N. Y.—[ADV. 14]

CABLE, Plastic Jacket—The Ansonia Electrical Co., Subsidiary of Noma Elec't Corp., Ansonia, Conn.—[ADV. 15]

CABLE STRIPPERS—The Taca Company, 4307 Raynol Street, Los Angeles 32, Calif.—[ADV. 16]

CABLE SPINNING—The Cable Spinning Equipment Company, 432 Crane St., Topeka, Kans.—[ADV. 17]

CORDS, Switchboard & Telephone—Commercial Cord & Supply Co., Clifton Springs, N. Y.—[ADV. 18]

CORDS, Switchboard & Telephone—Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.—[ADV. 19]

ELECTRICAL MEASURING INSTRUMENTS—W. C. Dillon & Co., Inc., 5410 W. Harrison St., Chicago 44, Ill.—[ADV. 20]

ENGINEERING, Construction—Neale Construction Company, 432 Crane St., Topeka, Kans.—[ADV. 21]

FIRE POTS, FURNACES, Etc.—Clayton & Lambert Mfg. Co., 1701 Dixie Highway, Louisville 10, Ky.—[ADV. 22]

FIRE POTS, FURNACES, Etc.—The Turner Brass Company, 823 Park Ave., Sycamore, Ill.—[ADV. 23]

INSULATORS, Porcelain—Porcelain Products, Inc., Box 300, Findlay, Ohio.—[ADV 24]

INSULATOR TIES—Copperweld Steel Company, Glassport, Pa.—[ADV. 25]

New portable posting and figuring machine, designed to give smaller business organizations mechanical bookkeeping advantages previously available only in much more extensive accounting equipment, has been announced by Underwood Corp. In addition to posting of accounts receivable, accounts payable, general ledger, payroll and other records, this Underwood Sunstrand Portable Posting Machine can be used for problems of addition, subtraction multiplication and division. A complete record and proof of all work is automatically printed to permit accurate checking of all figures. The machine is built for all forms in standard business use. The interchangeable control plate automatically tells the machine what to do and when to do it. There are fourteen distinct automatic operations including printing of dates and descriptive symbols, tabulation, subtraction, printing of debit and credit balances and paper feed.—Check NP 125.

MOTOR GENERATORS—D. W. Onan & Sons, Minneapolis, Minn.—[ADV. 26]

POLES, So. Yellow Pine—Koppers Company, Inc., Wood Preserving Div., 700 Koppers Bldg., Pittsburgh 19, Pa.—[ADV. 27]

POLES, So. Yellow Pine—T. J. Moss Tie Company, 700 Security Bldg., St. Louis, Mo.—[ADV. 28]

POLES, Northern White Cedar—Page & Hill Co., 1017 Plymouth Bldg., Minneapolis, Minn.—[ADV. 29]

POLES, Southern Yellow Pine—Taylor-Colquitt Company, 290 E. Main St., Spartanburg, S. C.—[ADV. 30]

POLES, Southern Yellow Pine—Texas Creosoting Co., Orange, Texas.—[ADV. 31]

POLE HOLE DIGGERS, Power—Highway Trailer Company, Edgerton, Wis.—[ADV. 32]

POLE HOLE DIGGERS, Power—Kamo Tools, 2117 South Troy St., Chicago 41, Ill.—[ADV. 33]

POLE HOLE DIGGERS—Tel-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis, Minn.—[ADV. 34]

POLE LINE HARDWARE—Hubbard & Co., 6301 Butler St., Pittsburgh, Pa.—[ADV. 35]

POLE LINE HARDWARE—Oliver Iron & Steel Corp., S. 10th & Muriel St., Pittsburgh 3, Pa.—[ADV. 36]

PRESERVATIVES, Wood—Barrett Div., Allied Chemical & Dye Corp., 40 Rector St., New York.—[ADV. 37]

PRESERVATIVES, Wood—Koppers Co., Inc., Wood Preserving Div., 700 Koppers Bldg., Pittsburgh 19, Pa.—[ADV. 38]

PROTECTIVE EQUIPMENT—Cook Electric Company, 2700 Southport Ave., Chicago 14, Illinois—[ADV. 39]

PROTECTIVE EQUIPMENT—Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.—[ADV. 40]

SLACK PULLERS—Coffing-Hoist Co., 800 Walter St., Danville, Ill.—[ADV. 41]

REBUILT TELEPHONE EQUIPMENT—Buckeye Telephone & Supply Company, 1432 S. Parsons Avenue, Columbus 6, Ohio—[ADV 42]

REBUILT TELEPHONE EQUIPMENT—Suttle Equipment Company, Lawrenceville, Ill.—[ADV. 43]

REBUILT TELEPHONE EQUIPMENT—Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 26, Ill.—[ADV. 44]

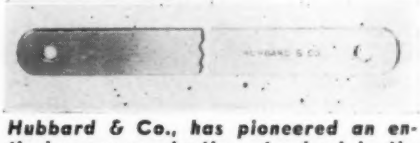
RECTIFIERS—Raytheon Manufacturing Co., 190 Willow St., Waltham 54, Mass.—[ADV. 45]

RECTIFIERS—Schauer Machine Company, 2060-68 Reading Road, Cincinnati 2, Ohio—[ADV. 46]

RINGING MACHINES—Lorain Products Corp., Lorain, Ohio—[ADV. 47]

RODS, Anchor—A. B. Chance Company, 210 N. Allen St., Centralia, Mo.—[ADV. 48]

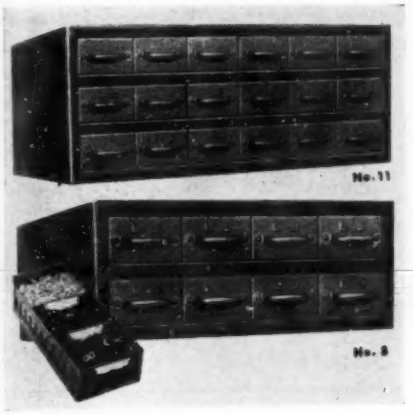
SOLDERING IRONS, Electric—Vulcan Electric Company, 88-90 Holten St., Danvers, Mass.—[ADV. 49]



Hubbard & Co., has pioneered an entirely new production standard in the manufacture of flat steel crossarm braces. All Hubbard Crossarm Braces are now made with rounded ends. The manufacturer claims easier handling, greater safety and neater appearance are achieved by the rounded end design.—Check NP126.

nd BUYERS' DIRECTORY

Manufacturers and Suppliers Serving the $8,000,000,000 Telephone Industry



Equipto, Division of Aurora Equipment Co., has announced two new strong, sturdy, low priced steel drawer cabinets for small parts. They can be used singly, side-by-side, back-to-back, and stacked on top of each other. Frames are welded into one strong solid assembly. Drawers have adjustable cross dividers. Finished in olive green baked enamel.—Check NP127.

SWITCHBOARDS, TELEPHONES, Etc.—Automatic Electric Company, 1033 Van Buren St., Chicago 7, Ill.—**[ADV. 50]**

SWITCHBOARDS, TELEPHONES, Etc.—Kellogg Switchboard & Supply Company, 6650 Cicero, Chicago 38, Ill.—**[ADV. 51]**

SWITCHBOARDS, TELEPHONES, Etc.—Leich Sales Corp., 427 W. Randolph St., Chicago, Ill.—**[ADV. 52]**

SWITCHBOARDS, TELEPHONES, Etc.—The North Electric Manufacturing Company, Galion, Ohio.—**[ADV. 53]**

SWITCHBOARDS, TELEPHONES, Etc.—Stromberg-Carlson Company, 100 Carlson Road, Rochester, N. Y.—**[ADV. 54]**

TERMINAL REPAIR KITS—Channell Slicing Machine, 2415 Roanoke Road, San Marino 9, Calif.—**[ADV. 55]**

TIME RECORDERS—Calculagraph Co., 306 Co., 306 Sussex St., Harrison, N. J.—**[ADV. 56]**

TREE EXPERTS—Davey Tree Expert Co., Kent, Ohio.—**[ADV. 57]**

TREE TRIMMERS—Bartlett Mfg. Co., 3003 E. Grand Blvd., Detroit, Mich.—**[ADV. 58]**

TREE TRIMMERS—Seymour Smith & Son, Inc., Oakville, Conn.—**[ADV. 59]**

TRUCK BODIES—Artisan Products, Inc., 3540 West 140th St., Cleveland 11, Ohio—**[ADV 60]**

TRUCK BODIES—Highway Trailer Co., Edgerton, Wisc.—**[ADV. 61]**

TRUCK BODIES AND EQUIPMENT—McCabe Powers Auto Body Co., 5900 N. Broadway, St. Louis 15, Mo.—**[ADV. 62]**

TRUCK BODIES—Body Division, York-Hoover Corporation, York, Pa.—**[ADV 63]**

WIRE, Insulated Drop—Alphaduct Wire & Cable Co., P. O. Box 69, Milltown, N. J.—**[ADV. 64]**

WIRE, Insulated Drop, Genuine Ironite—Paragon Electric Co., Two Rivers, Wis.—**[ADV. 65]**

WIRE, Insulated Drop—The Whitney Blake Co., P. O. Box K, Hamden, New Haven 14, Conn.—**[ADV. 66]**

WIRE, Insulated Drop Copperweld—Copperweld Steel Company, Glassport, Pa.—**[ADV 67]**

WIRE, Insulated Drop and Bronze—Acorn Insulated Wire Co., Inc., 225 King St., Brooklyn 31, N. Y.—**[ADV. 68]**

WIRE, Drop Wire (Iron, Bronze & Copperweld)—General Insulated Wire Co., Providence, R. I.—**[ADV. 69]**

WIRE, Insulated Drop, HT Bronze, Paraprene or Braid Insulation—Paragon Electric Co., Two Rivers, Wis.—**[ADV. 70]**

New Magnetic Probe, made of supermagnetic alloy, is no larger than a fountain pen. The Probe is particularly useful for removing steel or iron particles from areas where such foreign matter is harmful, such as the operating area of electrical instruments or delicate mechanisms.—Check NP128.

Send In This Coupon For More Information

Telephone Engineer Publishing Corp.
7720 N. Sheridan Road,
Chicago 26, Illinois

Please forward complete information on the following products and services described in the May, 1949 issue of TELEPHONE ENGINEER & MANAGEMENT. (Check information desired.)

ADV. 3.....	ADV. 4.....	ADV. 5.....	ADV. 5a.....
ADV. 6	ADV. 7.....	ADV. 8.....	ADV. 9.....
ADV. 10.....	ADV. 11.....	ADV. 12.....	ADV. 13.....
ADV. 14.....	ADV. 15.....	ADV. 16.....	ADV. 17.....
ADV. 18.....	ADV. 19.....	ADV. 20.....	ADV. 21.....
ADV. 22.....	ADV. 23.....	ADV. 24.....	ADV. 25.....
ADV. 26.....	ADV. 27.....	ADV. 28.....	ADV. 29.....
ADV. 30.....	ADV. 31.....	ADV. 32.....	ADV. 33.....
ADV. 34.....	ADV. 35.....	ADV. 36.....	ADV. 37.....
ADV. 38.....	ADV. 39.....	ADV. 40.....	ADV. 41.....
ADV. 42.....	ADV. 43.....	ADV. 44.....	ADV. 45.....
ADV. 46.....	ADV. 47.....	ADV. 48.....	ADV. 49.....
ADV. 50.....	ADV. 51.....	ADV. 52.....	ADV. 53.....
ADV. 54.....	ADV. 55.....	ADV. 56.....	ADV. 57.....
ADV. 58.....	ADV. 59.....	ADV. 60.....	ADV. 61.....
ADV. 62.....	ADV. 63.....	ADV. 64.....	ADV. 65.....
ADV. 66.....	ADV. 67.....	ADV. 68.....	ADV. 69.....

ADV. 70.....

NP 125.....NP 126.....NP 127 .....NP 128.....

Name: ..... Title: .....

Company: .....

Street Address: .....

Town: ..... Zone: ..... State: .....

THE CLEARING HOUSE

For the Convenience of readers of Telephone Engineer

SPECIALISTS ○ Over 43rd. Year

TELEPHONE FORMS

PRINTING • PLANOGRAPHING

YOUR ORDERS RECEIVE PROMPT ATTENTION

CULLOM & GHERTNER CO.

309 5th AVE., N. NASHVILLE 3, TENN.

SLOAN, COOK & LOWE

CONSULTING ENGINEERS

Suite 1344 120 South LaSalle Street

CHICAGO

Appraisals—Original Cost Studies
Depreciation, Financial, and Other
Investigations

CYRUS G. HILL

ENGINEERS

ALLEN K. HAMILTON

Plant—Traffic—Commercial
Valuations and Original Cost

231 S. LaSalle St., Chicago 4

RECONDITIONED EQUIPMENT

Kellogg No. 801 Steel Wall Sets, Common Battery, Any type Ringers, at $8.00.
Kellogg No. 118 Stands, No. 600 type Ringer Boxes, complete desk sets, Common Batt., at $8.00.
Kellogg No. 118 or 84 type stands, complete at $5.00.
Brand New, W. E. No. 47 Plugs, at 50c each.

INDEPENDENT TELEPHONE REPAIR CO.
1432 West Fifteenth St. Chicago 8, Ill.

Chemical Dehydrators

Automatically controlled, using flake calcium chloride for preventing dampness and condensation in automatic totally enclosed telephone exchanges.

The H. J. Kaufman Co.

15215 Roselawn Ave., Detroit 4, Mich.

JAY G. MITCHELL

CONSULTING ENGINEER

APPRAISALS—COSTS—PLANT

7720 SHERIDAN ROAD CHICAGO
FOR MAIL BOX 523 EVANSTON, ILLINOIS

FOR SALE:

Leich Electric No. 11-B Kick Coils. Now $4.00 each—Used $3.00 each.

Western Electric No. 26-LA-Cable terminals, 26 pair, protected type, 10-ft. Stubs, housed in steel case, less fuses & carbons.

Brand new, $50.00 each.

Prices are F.O.B. Chicago, Illinois

INDEPENDENT TELEPHONE REPAIR CO.
1432 W. Fifteenth St., Chicago 8, Ill.

Cedar Poles

MAC GILLIS & GIBBS COMPANY

Wells Bldg. Milwaukee 2, Wis.

★ ★

Northern White and Western Red
Cedar Poles—Plain or Butt-Treated

HELP WANTED: Plant Superintendent. Company in Southwest. Prefer engineering graduate with experience. Give detail of education and experience. Attach snapshot. Write Box No. 8620 c/o Telephone Engineer.

HELP WANTED: Plant Superintendent. Company operating in Iowa. Must have experience in engineering and plant supervision. Give details of education and experience. Write Box No. 8625 c/o Telephone Engineer.

POSITION WANTED: College graduate, B.S.E.E., Registered Engineer—20 years experience with Bell and Independent companies, desires position as chief engineer or plant superintendent. Write Box 8626 c/o Telephone Engineer.

POSITION WANTED: Operating Engineer; Experienced layout, installation, operation of Strowger, W. E. step-by-step equipment, intertoll dialing, Strowger director system. Familiar with outside plant engineering, operating practices. Personnel training. Now Engineer in charge of 6 exchange intertoll dialing network with 400 mile operating area, director carrier dialing. Now in foreign service. Desire to return to United States to possibilities with expanding, modernizing, or converting companies. Age 40, married, one child. Write what I can do for you to Box No. 8627 c/o Telephone Engineer.

WANTED TO BUY: One Western Electric or Neale Cable Spinner. Advise price and model in first letter. Write Norman County Telephone Co., 240 Frontenac Bldg., Minneapolis 2, Minn.

DROPWIRE

$15. per 1,000, made to Bell standard #6738, parallel: 18-40% copperweld rubber & braid, equal to #17 Signal Bronze, minimum 25,000 ft. Write Box No. 8623 c/o Telephone Engineer.

FOR SALE: Magneto Wallsets, Compact type, serviceable condition. Inquire. The Lincoln Telephone and Telegraph Co., Lincoln, Lincoln 1, Nebraska.

FOR SALE: A Natural" for two men—one an office man and the other a plant man. You buy just 1000 of our nearly eleven hundred telephones (all in service) at the price of a new telephone, the rest of the plant, equipment, cash reserve and stocks all thrown in. Six towns. One town of a 1000 inhabitants; all underground cable; two position Kellogg switchboard; stucco office building and three stall stucco garage all on half block pole yard, half block from Main Street. One town North Automatic with dial rural telephones. All company owned telephones—no switches. Stock of supplies for rebuilding. Located in the finest wheat growing part of South Dakota. Less than the annual take-in. A wonderful deal for someone. Write Box No. 8628 c/o Telephone Engineer.

FOR SALE

3600 Line Manual Exchange, Traffic Distributor Type consisting of:

3600 Stromberg-Carlson Co. 200 Type Line and Cut Off Relays

360 North All Relay Primary Circuits comparable to 100 point Line Finders in groups of 10 (10% trunking)

325 North All Relay Secondary Circuits comparable to 100 point Line Finders in 3 groups of 78 and 1 group of 91

360 Feature Cord Circuits

13 Dean and Stromberg-Carlson Co. Switchboard Positions

15,000 Stromberg-Carlson Co. and Dean Type 130 Jacks on Type 81 Mtgs. 20 per strip

1 lot misc. Power Panels, IDF, MDF, etc.

This equipment has been removed from service at Everett, Washington.

For Further Information Contact:

Lloyd Wallgren, Purchasing Agent
West Coast Telephone Co.
Everett, Washington

CABLE-SPLICERS' WIPING CLOTHS

WIPING THE VERTICAL JOINT

Showing the up-right cloth in action.

Formed-flexible finishing cloths (Patented); Flat finishing cloths; Catch cloths; Crotch cloths and Up-right joint catch cloths. Made of world-prize HERRINGBONE TICKING or imported English MOLESKIN. If your jobber cannot supply you write us for literature and prices.

GEO. E. WILLIAMS, *Mfr.*
3035 ALDRICH AVENUE, MINNEAPOLIS 8, MINN.

BUCKEYE

For a Quarter of a Century Rebuilder of the Independents' Telephone Equipment.

For Reconditioned Telephone and Switchboard Equipment

Depend on

BUCKEYE TELEPHONE & SUPPLY CO.
COLUMBUS 6, OHIO

Just Out—New 2nd Edition

FRACTIONAL HORSEPOWER ELECTRIC MOTORS

By CYRIL G. VEINOTT
Manager, Induction Motor Section, Small Motor Division, Westinghouse Electric Corporation
Second edition, 554 pages, 6 x 9, illustrated, $5.00

This completely revised, second edition is packed with practical information on fractional horsepower motors of every description. Designed for repair men, operating engineers, and maintenance men, and salesmen in this field, it brings you detailed information on how to repair, maintain, install, apply, inspect, sell, test, manufacture, and design fractional horsepower motors according to standards set by the ASA, NEMA and the AIEE. A practical manual, it provides accurate and easy-to-follow descriptions of single-phase and split-phase induction motors, capacitor-start, repulsion-start, universal, polyphase induction, syncronous, direct-current, and many other types. It brings you a detailed analysis of fractional horsepower motor testing, and of constitutional features common to more than one type—it shows you how to select the right motor for a specific job.

Order copies from:
Telephone Engineer Pub. Corp.
7720 N. Sheridan Rd., Chicago 26, Ill.

THE GENIUS OF INDUSTRIAL RESEARCH

by D. H. KILLEFFER

1948, 270 pages, $4.50

This treatment of modern industrial research and its methods is intended primarily to guide the ambitious young researcher to a better understanding and a surer mastery of his craft. The material is mostly from the field of industrial chemistry, for in no other is research so important, so well developed, and so fruitful. No apology is offered to physicists, biologists, sociologists, psychologists and others interested in research, for they too will find this book stimulating and inspiring. The fascinating accounts of how many important modern developments were achieved are quoted directly from original presentations—a method adopted to give a clear insight into the reasoning behind these researches. The point of view throughout is that of the individual researcher and not that of management or direction.

Described at length are the research methods which produced high-octane gasoline; the gas-filled tungsten-filament electric lamp; celluloid, first synthetic plastic; accelerators of rubber vulcanization; modern refrigerants; synthetic rubber, and many others that have caused revolutions in industry.

Order from

TELEPHONE ENGINEER
7720 Sheridan Rd. Chicago 26, Ill.

A Marketplace for Anything You Want or Don't Want

Since 1909 telephone men have been using the Classified columns of TELEPHONE ENGINEER & MANAGEMENT when they want quick results. Largest paid circulation serving the telephone industry.

IF YOU WANT TO—

—buy an exchange
—sell a telephone exchange
—hire a new employee
—buy used equipment
—sell used equipment
—secure a better position
—let your desires be known through a low cost CLASSIFIED AD in TELEPHONE ENGINEER & MANAGEMENT.

Rates are reasonable — 15 cents a word, except for Situation Wanted Ads, which are only 5 cents a word. In figuring cost of ads, count each word of address in number of words used. Minimum charge $2.00. Special rates for Display type ads on request.

If you wish replies to your ad to be addressed to TELEPHONE ENGINEER & MANAGEMENT, count blind address as 4 words. All ads payable on order. Discount of 25% is allowed on ads ordered for 4 or more times: for example—

When you order 4 insertions —pay for 3 insertions.

When you order 8 insertions —pay for 6 insertions.

TELEPHONE ENGINEER & MANAGEMENT is published on the 15th of each month. Ads should reach us by 1st of the month.

TELEPHONE ENGINEER & MANAGEMENT
7720 Sheridan Road
Chicago 26, Illinois

ALPHADUCT WIRES
FOR All TELEPHONE REQUIREMENTS

LONG LIFE

Neoprene Jacketed
Drop and Bridle Wire

Weatherproof Braided Drop and Bridle
Interior - Tree - Ground - Switchboard -
Pothead - Cable Terminal - Instrument

Manufactured and Tested to Rigid Specifications
ALPHADUCT WIRE & CABLE CO.
Milltown, New Jersey Telephone: Milltown 8-0030

QUICK, SAFE* HEAT
*Tested to 1100 Volts

"American Beauty"
SOLDERING IRONS

Telephone workers and repair men depend on American Beauty soldering irons for their quick, safe heat — safe because every American Beauty iron must pass an insulation breakdown test of 1100 volts.

From the 50-watt lightweight for precision work to the 550-watt utility iron, there are five work-convenient sizes — each a safety-tested American Beauty. Pyramidal or chisel-type tips of pure bar copper are easily interchangeable to suit each job. Select the iron you need from the Automatic Electric catalog.

RECOMMENDED AND DISTRIBUTED BY

AUTOMATIC ELECTRIC
SALES CORPORATION

1033 WEST VAN BUREN STREET, CHICAGO 7, ILL.

Frederick C. Young Named Chief Telephone Engineer

Frederick C. Young, Stromberg-Carlson vice-president in charge of engineering, has announced the appointment of John H. Voss as chief telephone engineer.

Mr. Voss entered the company in November, 1946, as head of the circuit development and testing laboratory for Stromberg-Carlson's XY dial and RELAYYDIAL systems and a year ago was placed in charge of all phases of dial systems engineering.

He is a graduate of Bliss Electrical School of Washington, D.C., and has had more than 26 years' telephone experience, largely with dial systems, before joining Stromberg-Carlson.

Starting as an installer on dial exchanges, Voss advanced to the development of dial systems, working as a systems test engineer for five years. He was a circuit designer for 15 years and was later placed in charge of step-by-step systems development where he remained for four years before accepting the Stromberg-Carlson offer.

He holds more than 40 patents related to developments on central office exchanges.

Florida School Honors Frank W. Coffing

Frank W. Coffing, president of the Coffing Hoist Co., Danville, Ill., and a resident of Coral Gables, Fla., was recently named honorary chancellor of Florida Southern College, Lakeland, Fla., for the next year.

Each year the school selects an outstanding citizen on the basis of contribution to the cause of education and names him honorary chancellor for the year.

Mr. Coffing, through his company, has contributed greatly to the field of research in industrial engineering.

Henry J. Leisenheimer Appointed Manager of Export Sales

The Electrical Products Co., 1725 Clarkstone Road, Cleveland 12, Ohio, has announced the appointment of Henry J. Leisenheimer as Manager of export sales. Mr. Leisenheimer brings to his new position a rich background of export experience. For years, he directed the export activities of The Cleveland Tractor Co. More recently, he served in the same capacity for The Hydraulic Press Manufacturing Co.

The Electric Products Company is a 40-year old manufacturer of special electrical equipment such as industrial truck battery chargers, electroplating motor-generators, Diverter-Pole motor generators, industrial dynamometers, synchronous motors and generators and special motors and generators.

Index to Advertisers

Acorn Insulated Wire Co. ..... —
Albion Malleable Iron Co. 70
Allied Chemical & Dye Corp., Barrett Division ..... —
Alphaduct Wire & Cable Co. 76
American Coach & Body Co. ..... —
American Condenser Co. ..... —
American Creosoting Co. ..... —
American Crossarm, Inc. ..... —
American Steel & Wire Co. ..... —
American Electric Heater Co. ..... —
American Structural Products Co. . 52
American Tel. & Tel. Co. 50, 51
Armstrong Cork Co. ..... —
Artisan Products 69
Automatic Electric Co. ..... —
Automatic Electric Sales Corp. 40, 41, 76
Automatic Telephone & Electric Co., Ltd. ..... —

Barco Manufacturing Co. ..... —
Barber Greene ..... —
Barnstead Still & Sterilizing Co. ... —
Bartlett Mfg. Co. ..... —
Bashlin Co., W. M. 6
Belmont Radio ..... —
Berry & Co., L. M. 13
Bethlehem Steel Corp. ..... —
Biddle Co., James G. ..... —
Blackburn Specialty Co. ..... —
Brach Mfg. Co., L. S. 68
Brown Wood Preserving Co. ..... —
Buckeye Telephone & Supply Co. 61, 75
Buckingham Mfg. Co. ..... —
Bunnell, J. H., Co. 3

Cable Spinning & Equipment Co. .. 38
Calculagraph Mfg. Co. 20
Carpenter Mfg. Co. ..... —
Chance Co., A. B. 45
Chapman Chemical Co. ..... —
Churchill Cabinet Co. ..... —
Clayton & Lambert Mfg. Co. ..... —
Coffing Hoist Co. ..... —
Colfax Lumber Creosoting Co., Inc. —
Collyer Insulated Wire Co., Inc. ... —
Columbia Steel Co. ..... —
Commercial Cord & Supply Co. ..... —
Communication Equipment ..... —
Connecticut Tel. & Elec. Div. ..... —
Continental Farm Machine Co. ..... —
Cook Electric Co. ..... —
Cope, T. J., Inc. ..... —
Copperweld Steel Co. 15
Coto-Coil Co., Inc. ..... —
Cullom & Ghertner Co. 74
Cummings Machine Works ..... —

Davey Tree Expert Co. ..... —
Defiance Alloyed Products Co., The —
Dicke Tool Co. ..... —
Dillon & Co., Inc., W. C. ..... —
Drake Electrical Works, Inc. ..... —
du Pont de Nemours, E. I., Co., Inc. —
D-X Products Co. ..... —

Ederer, Inc. ..... —
Electric Products Co., The ..... —
Electric Storage Battery Co. 10
Electronic Supplies ..... —
Engineering Service Associates .... —
Estwing Mfg. Co. ..... —

Federal Tel. & Radio Corp. ..... —
Forged Steel Products Co. ..... —
Four Wheel Drive Co., The ..... —

G & W Electric Specialty Co., Inc. —
General Cable Corp. ..... —
General Electric Co. ..... —
General Insulated Wire Works, Inc. —
General Telephone Directory Co. ... 2
Gould Battery Co. 5
Graybar Electric Co. 62
Great American Industries ..... —

Haley Co., Inc., R. G. ..... —
Hammond Drierite Co., W. A. ..... —
Hatheway Patterson Co. ..... —
Highway Trailer Co. ..... —
Hill, Cyrus G. 74
Hirsch Organization, Gustav ..... —
Homelite Corp. ..... —
Hubbard & Co. ..... —
Hykon Mfg. Co. ..... —
Independent Telephone Pioneer Association ..... —

Independent Telephone Repair Co. . 74
Indiana Steel & Wire Co. 64
Industrial Instruments, Inc. ..... —
International Automatic Electric Corp. ..... —
International Harvester ..... —

Jacques Power Saw Co. ..... —
Johnson's Fair ..... —
Joslyn Mfg. & Supply Co. ..... —

Kaufman Co., H. J. 74
Ka-Mo Tools, Inc. ..... —
Kearney Corp., Jas. R. 62
Kellogg Switchboard & Supply Co. 16, 17, 18, 19, 46, 47
Kemode Mfg. Co. ..... —
Kester Solder Co. ..... —
Kennecott Wire & Cable Co. ..... —
Klein & Sons, Mathias ..... —
Koiled Kords, Inc. 60
Kwikheat Soldering Irons ..... —

Leeds & Northrup Co. ..... —
Leich Sales Corp. 36, 37
Lenz Electric Mfg. Co. ..... —
Loomis Advertising 35
Lorain Products Corp. 7

McCabe Powers Auto Body Co. ..... —
MacGillis & Gibbs Co., The 74
Meredith Co., Inc., Wm. C. ..... —
Mitchell, Jay G. 74
Morrison Steel Products, Inc. ..... —
Moss Tie Co., T. J. ..... —

National Carbon Co. ..... —
National Fireproofing Co. 68
National Telephone Supply Co. ... 79
Neale Construction Corp. 48
North Electric Mfg. Co. 80
Offsink, Herbert M. ..... —
Oliver Iron & Steel Corp. ..... —
Onan, Inc. 71
Owens-Illinois Glass Co. ..... —

Page & Hill Co. 71
Paragon Electric Co. 9
Phelps-Dodge (Habirshaw) ..... —
Porcelain Products ..... —
Premax 78

Ray-O-Vac Co. ..... —
Raytheon Mfg. Co. ..... —
Rebuilt Electric Equipment Co. ... —
Reliable Electric Co. 14
Roebling's Sons Co., John A. ..... —
Roll-A-Reel ..... —
Runzel Cord & Wire Co. 39

Sargent & Co. (Schollhorn Div.) . —
Schauer Machine Co., The ..... —
Seymour Smith & Sons, Inc. ..... —
Shannon, Jacob J. ..... —
Shely Construction Co. ..... —
Sherron Metallic Corp. ..... —
Sloan Cook & Lowe 74
Sound Equipment Corp. ..... —
SoundScriber Corp. ..... —
Stromberg-Carlson Co. 22, 23, 54, 55, 58, 59, 66, 67
Sturgis Posture Chair Co. ..... —
Sugarman Equipment Co. ..... —
Suttle Equipment Co. 56
Superior Mfg. Co. ..... —

Taca Company ..... —
Tallen Co., Inc. ..... —
Taylor-Colquitt Co. ..... —
Tel-E-Lect Products, Inc. 62
Telephone Advertising Inst. ..... —
Telefon Fabric Automatic a/s .... —
Telephone Engineer Pub. Corp. ... —
Telephone Repair Service Co. ..... —
Telephone Repair & Supply Co. ... 25
Telephone Sales & Service Co. ..... —
Tomkins, A. E., & Co. 61
Transandean Associates, Inc. ..... —
Turner Brass Works, Inc. ..... —
Unique Mfg. Co. 56

U. S. Steel Corp. 7

Vulcan Electric Co. ..... —

Wall Manufacturing Co. ..... —
Western Electric Co. 49
Whitney Blake 43, 44
Williams, Geo. E. 75
Wyoming Valley Equipment Co. .. —

York Hoover Corp. ..... —

Just Published!

TRADE-MARKS

By H. BENNETT
Technical Director, Glyco Products Co., Inc.

Here is a book outlining the principles of trade-mark selection that will enable the reader to eliminate a great deal of time, money and effort usually involved in the choice of a trade name.

The four different ways of finding or coining original names given in this book will make it easy to choose between a good and poor trade-mark. The difference between these is often equivalent to the difference between a mediocre and highly successful business.

Buyers, sellers, manufacturers, lawyers, chemists, engineers and others will welcome this book which gives a comprehensive up-to-date alphabetic list of trade-mark chemicals, textile specialties, plastics, elastomers, alloys and allied products, showing chemical composition and manufacturers. Much of the information has never been published before.

479 Pages—1948—$10.00

CONTENTS

PREFACE
INTRODUCTION
LEGAL ASPECTS
Rules of Practice in Trade-Mark Cases
Forms for Trade-Mark Cases
"Lanham Act"—New Trade-Mark Law
Some Decisions of the United States Courts
COINING OF TRADE-MARKS
Types of Trade-Marks
The Perfect Trade-Mark
Surveying the Field
The Making of Words
Beautiful Names
Short Names
Indirectly Descriptive Names
The Series
Use of the Name Finders
TRADE-MARK LISTINGS
Trade-Marks Classified According to Meaning (Type)
Old Trade-Marks
Trade-Marks Classified by Industry

TELEPHONE ENGINEER
7720 N. Sheridan Rd. Chicago 26, Ill.

How to get along *better* . . . and enjoy doing so

Here is a book that promises you much good, in a fuller, more successful and satisfying life . . . and shows you how to get it without undertaking complicated psychological analysis or rigid regimentation of your affairs.

IT'S *YOUR* FUTURE
Make the Most of It

By MARTIN PANZER
Whittlesey House Publication
270 pages, 5½ x 8, $2.50

In a sensible, bunk-less treatment, this book explains simple ideas and methods for achieving success and happiness in terms of a satisfactory way of life within your opportunities and capabilities. It will help you set a reasonable and worthwhile goal—to reach that goal—and to enjoy life in the process.

It does not pretend to provide a one-way road to success, but it does demonstrate that it is possible to readjust personality and mode of living in order to take full advantage of all opportunities which come your way.

Order from:
Telephone Engineer Pub. Corp.
7720 N. Sheridan Rd., Chicago 26, Ill.

PREMAX

Visible in Any Weather ... Markers That Last

Regardless of age or weather conditions, Premax Stamped and Embossed Metal Letters, Figures and Pole Tags are clear and legible, making it easy to locate any piece of property so identified.

Cheaper than stenciling, too . . . because not only is the first cost actually less, but you need never spend one cent for maintenance.

Send for special Bulletin, showing how other utilities are profiting by using the Premax method of property identification.

Premax Products

Division Chisholm-Ryder Co., Inc.

4945 Highland Ave., Niagara Falls, N.Y.

HIGH-POLYMER PHYSICS

A Symposium

Edited by

DR. HOWARD A. ROBINSON

Published under the Auspices of THE AMERICAN INSTITUTE OF PHYSICS

•

Thirty-nine physicists and chemists, all prominent experts in their special fields, contributed to this symposium on the relatively new subject of high-polymer physics. The results discussed come largely from industrial research laboratories rather than from college research groups. The physicist had to help the chemist and vice-versa to explain the phenomena encountered in high polymers. This volume is the product of their cooperation.

Individual articles are devoted to the molecular structure, physical and physicochemical properties of natural and synthetic high polymers, e.g., glass, cork, rubber, textiles, certain plastics, synthetic resins and synthetic rubbers. The last part deals with scientific instruments used for making determinations and carrying out tests. Among the properties investigated are the mechanical, electrical, viscosity, dielectric, thermal, elastic, stress-strain, crystallization, tackiness, electrostatic, swelling, and thermodynamic characteristics of certain high polymers.

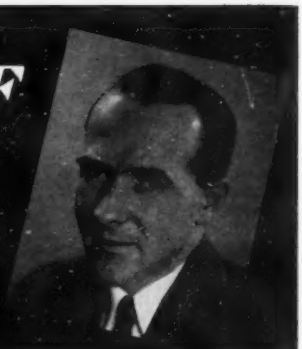
572 Pages • 1948 • $12.00

Order from

TELEPHONE ENGINEER

7720 N. Sheridan Rd. Chicago 26, Ill.

THE BACK OF THE BOOK



By JOHN G. REYNOLDS

Managing Editor

A Telephone's Value . . . Bill Mason, commentator for station KBKI, told his listeners in and around Alice, Texas, recently that he believes public utilities have played an important part in building America, and that telephone service is "worth every penny" of the increased rates sought by Southwestern Bell in that area.

According to LONG LINES magazine Bill proposed an effective way to prove his point.

"To anyone who thinks the 'phone is not worth the money," he suggested: "don't use it this afternoon. If you were going to call a friend, jump into the car and go over to see her. She may not be home, but you can go back. If you need a doctor, don't call around trying to locate him; just walk around until you find him. If you want Joe to bring home a loaf of bread, don't call him, walk down to the store yourself and get it. If the 'phone rings don't answer it; let them come out there and see you. Then see what the service means. And that's one afternoon's convenience, having everybody in town where you can talk to them within a minute, is going to cost you a nickel every twelve hours—a nickel from noon to midnight, another nickel from midnight to noon . . . "

• • •

"Goodbye To Hello" . . . "Hello" is no better than a grunt—when you're answering a telephone. So says the New York Telephone Co., which has started on a new phase of its campaign to clear the wires of mumbling and other time-wasting faults.

The company recently began distribution of blotters bearing the picture of a masked man at a telephone, and a caption reading "Who is Hello?"

" 'Hello' " read the message, "means very little over the telephone.

"It gives no information except that some one has answered. A grunt, while not so polite, would serve the same purpose.

"Think of the time that would be saved if all telephones were answered: 'Mr. Smith' or simply 'Smith.' Or in the case of a departmental telephone: 'Treasurer's office, Miss Jones.' " . . . You take the idea from there.

• • •

Retired Workers . . . Around the first of June a large Chicago company will open up some new office space for the use of its "retired employes."

The offices, to be known as "retirement committee quarters" will be equipped with a reception room, desks and telephones.

The idea behind this new plan is threefold: (1.) To help the company's retiring business people taper off from daily work into new found leisure; (2.) To give these people a place to transact their own business; (3.) To give the company benefit of continuing contacts and judgment from its seasoned employes.

No one will be saddled with any responsibilities, but anyone who wants to keep a hand in will be in position to do it, informally and without pressure. . . . The idea has a great deal of merit. It should recommend itself to telephone companies with retiring men and women who don't want to spend all their time going fishing.

THIS *Nicopress* SLEEVE

plus

THIS *Nicopress* 17-2 TOOL

Make better pair splices faster than you've ever made them before!

Ask Your Jobber

THE NATIONAL TELEPHONE SUPPLY COMPANY

The National Telephone Supply Company

5100 SUPERIOR AVENUE • CLEVELAND 3, OHIO

Canadian Mfr.—N. SLATER CO., LTD., HAMILTON, ONT., CANADA

Export Distributor—INTERNATIONAL STANDARD ELECTRIC CORP., NEW YORK, N. Y.

Nicopress is the Registered Trade Mark of The National Telephone Supply Company

Your Subscriber Knows Your Company by the Telephone You Supply

- The North telephone will give him more satisfaction for his money at the lowest cost to you.
- The North telephone uses less space because the handpiece is mounted on the long dimension of the base.
- The transmission of this set will remind your subscriber 12 times a day of the perfect service you are providing.
- The clear penetrating tone of the North ringer will please him.
- And finally, the attractive advanced design of this instrument will adjust itself with dignity in any surroundings.

Plan now to standardize on North for subscriber satisfaction in 1949

IMMEDIATE SHIPMENT FROM STOCK

THE NORTH ELECTRIC MANUFACTURING CO., Galion, Ohio, U. S. A.

Originators of ALL RELAY *Systems of Automatic Switching*